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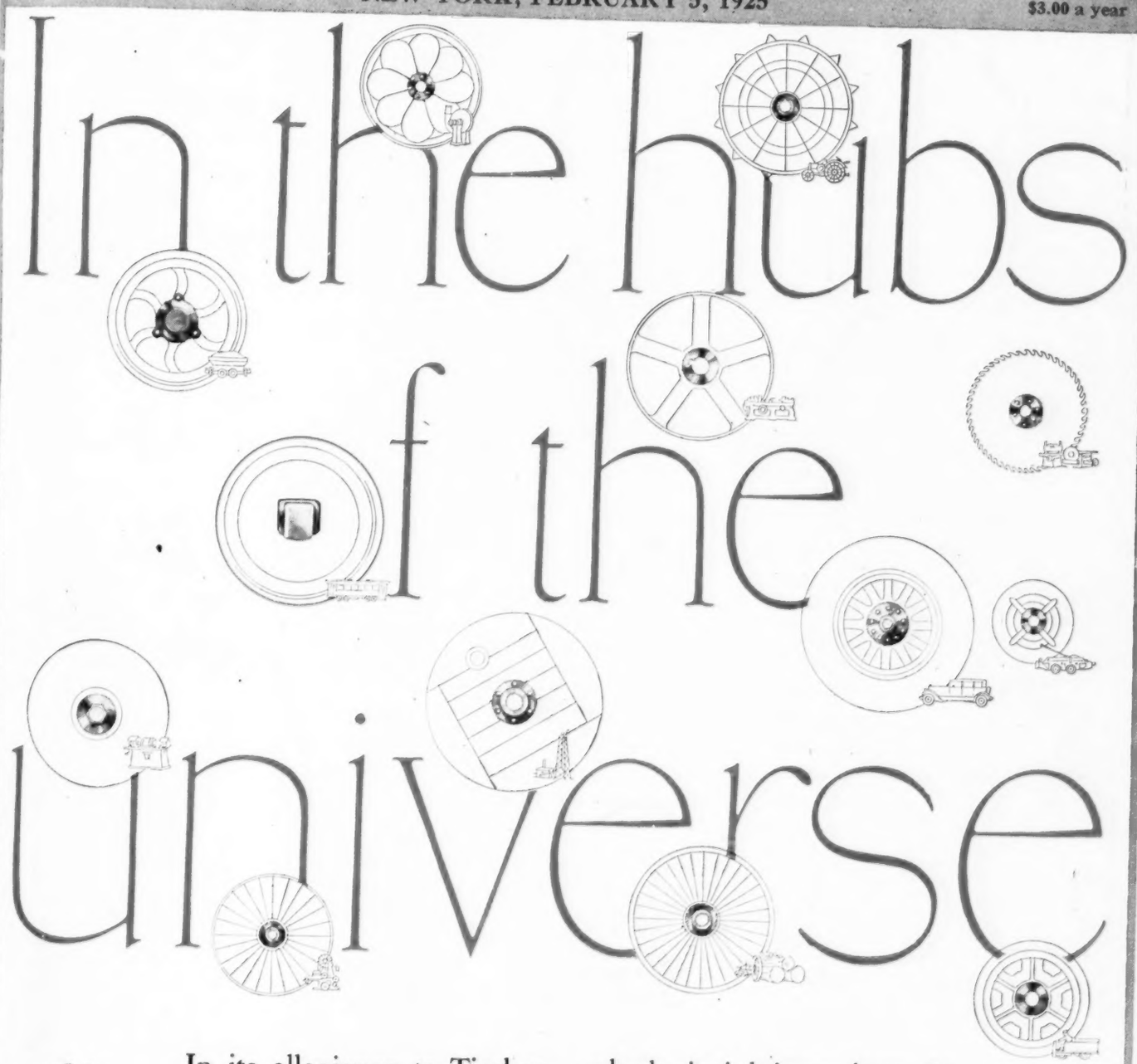

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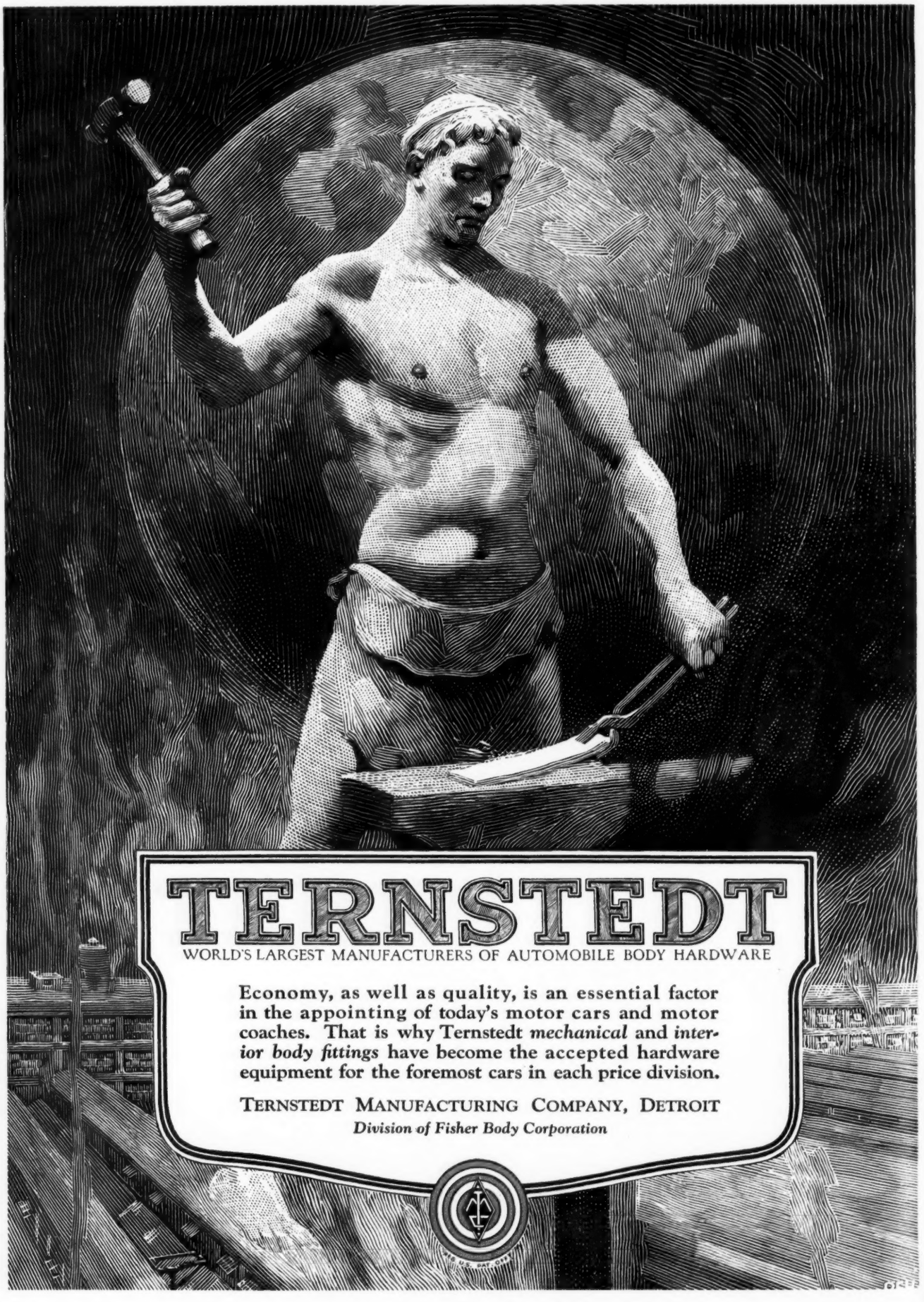

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AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

VOL. 52 NEW YORK—THURSDAY, FEBRUARY 5, 1925 No. 6

N. A. D. A. Gets New Recognition from Car Manufacturers

Hupmobile president urges retailers to join. Other executives indorse work. Chicago show week events may mark new era in dealer-manufacturer relationships.

By Norman G. Shidle

FOCUSING about the annual meeting of the National Automobile Dealers Association, but spreading over the whole of show time activities, new lights were thrown on manufacturer-dealer relationships in Chicago last week.

Not long since a session of the dealers' association was of only minor interest to the car builder. But three things happened last week which really are of vital significance:

1. C. D. Hastings, president, Hupp Motor Car Co., sprang a surprise on the retail representatives when he publicly urged Hupmobile dealers to become members of the N. A. D. A. and stated his belief in the possibilities for constructive service which lie ahead of that organization.

2. Three men representing the passenger car manufacturers sat at the speakers' table at the N. A. D. A. dinner and some six or seven others attended the function.

3. C. W. Nash, speaking extemporaneously at that dinner, voiced approval of the stiffening of backbone which has taken place among dealers in recent years and paid a tribute to the part which the retailers have played in building the automotive industry to its present proportions.

Any one of these things taken alone would be of importance. Coming one after the other, as they did they well may be interpreted as opening the way to an entirely new lineup in dealings between manufacturers in general and their distributing organizations.

In one sense, nothing startling happened in Chicago last week. It can be said that all of these ideas about dealer-manufacturer cooperation have been in the mind of practically every automotive executive for a long while; that progressive manufacturers have been operating on that basis for many years; and that there is nothing new under the sun anyway. All that is true. Changes and conceptions of this kind grow up; they are not invented.

But often a development goes along for some time, gathering in importance and strength, but understood and recognized only in a general way. Then suddenly something happens to focus attention on it. The picture becomes clear, its outlines sharp. What was recognizable but indistinct becomes vivid and unmistakable.

History in the Making

Something like that is what happened in Chicago. Automotive history was made. Every executive may not find time to read that history carefully and to understand it fully in the next few weeks. But its import gradually will be forced on everyone and those who first read and understand will be in the van of progress.

There is nothing new, for instance, in the suggestion that car builders regard their dealers as a most important part of their organizations and that fairness should characterize all mutual relationships. That idea is as old as constructive thought in the automobile business. But everybody knows that often it hasn't been carried out to the highest degree. And everybody knows, too, that in years past some factories have not looked with favor on the building up of mutual strength among dealers.

Never has there been any active opposition to deal-

ers' orgnizations. But up to last week, the manufacturers' attitude in general seemed to be one of passive acquiescence to their progress, coupled with sporadic cooperative efforts on specific problems. Silhouetted against this background, C. D. Hastings' flat statement flashed out with sharp clarity when he gave his indorsement to the N. A. D. A. and urged his dealers to join it. That statement, made on Monday evening of Chicago Show Week during the Hupmobile dealer dinner, was the first indication that the week was to see developments of unusual importance in regard to future dealings between manufacturers and the men who sell their products at wholesale and retail.

Next day the N. A. D. A., meeting in its eighth annual convention, officially expressed its gratification to Mr. Hastings for his outspoken indorsement and offered to car manufacturers all the cooperation within its power.

Manufacturers Attend Dealer Dinner

Then came the N. A. D. A. dinner on Tuesday evening and the new spirit of cooperation which has been growing up for several years was visualized by the presence at the speakers' table of C. W. Nash, H. H. Rice and Alfred Reeves, with C. C. Hanch, O. C. Hutchinson, Harry Moock and other important factory executives in attendance.

C. W. Nash was called on to speak. He did. His remarks typified the kind of relationship which is going to exist between car builders and dealers in the future. They indicated a sincere desire on the part of car makers to talk over with the dealers any mutual problems which may arise, but they were not the standardized "love-feast" words which predicted arrival of the millennium on the 20th Century the next morning. His remarks will be printed in a later issue.

Future differences of opinions there will be; there may be even some darned good fights over specific issues. But the differences are going to be such as arise between the quarterback and captain of a football team. The two may not always agree, but both are seeking the same goal and both are playing on the same team. They may dispute with one another as to the proper play to run at a given time, but they get together before the signal is called and the play runs off.

The meeting of the N. A. D. A. in itself was constructive and valuable from a dealer standpoint.

1—It produced concrete evidences that the automobile merchant at last has come into his own.

2—It gave the individual distributor and dealer who attended a remarkable amount of real "bread and butter" merchandising assistance.

There was record breaking attendance at every session. More than 2000 distributors and dealers from 43 States were registered and the six sessions held in the grand ball room of the La Salle Hotel drew an average attendance considerably above the 700 mark.

There have been evidences for some time past of a changing attitude on the part of manufacturers toward the dealer and his problems. There has been much talk about the necessity for keener appreciation all along the line of the importance of profitable retailing of automobiles and not just quantity retailing.

Signs of Action

But during this particular convention there was greater evidence than ever before of actual desire for action toward these ends.

The automobile dealer is coming into his own in 1925. He and his manufacturer are thinking along the same lines. There is more desire for cooperation on both sides and in a great many instances there is more actual application of the desire.

The transition has been slow, but its progress has been hastened in 1925 by recognition of the fact that with factory capacities greater than demand, competition keen and products pared down to the lowest possible prices, the dealer must sell more cars to make the same gross income that he did before. And, under such conditions, the closest cooperation between producer and distributor is necessary in order to insure the success of both.

That these things should have been given particular emphasis at a time when the N. A. D. A. convention program was placing great emphasis upon methods of producing profits in retail establishments made the general movement particularly significant.

AUTOMOTIVE history was made in Chicago last week.

Chas. D. Hastings publicly urged Hupmobile dealers to join the N. A. D. A.

Chas. W. Nash publicly commended dealers for the stand they have taken against overloading and other merchandising evils.

A new light of unusual intensity has been focused on the whole question of dealer-manufacturer relationships.

This article tells what happened.

The intensely practical business program of the convention was built up from a foundation of facts concerning the 1925 market conditions laid down by J. H. Collins of the Research Division, Class Journal Co. and Chilton Co., publishers of AUTOMOTIVE INDUSTRIES. With the aid of charts Mr. Collins pictured the sales possibilities of 1925 for replacement and to new owners.

From this point Harry M. Fancher, treasurer of Tom Botterill, Inc., Hudson-Essex distributor in Denver, carried the delegates into the consideration of how to insure net profits on business through the application of a budget control of expenditures.

The high spot of the convention was the intensely practical discussion of developing an automobile retail selling plan, by Edward Payton, N. A. D. A. merchandising specialist, whose services are offered to individual distributor organizations as well as in conventions and sales meetings by that association.

Mr. Payton's plan is built on the belief that the dealer or salesmanager and not the salesman, is responsible for the economical and efficient presentation of the sales story to the people who are most likely in a community to be in the market. It places the responsibility for obtaining good prospects on the dealer.

American and British Engineers Review Balloon Tire Situation

B. J. Lemon indicates need for supreme council with power to control standardization. Says eleven tire sizes now are used as original equipment. Colin Macbeth, formerly of Dunlop Co., says low pressure casings decrease skidding. Favors drop center rims.

PROBLEMS growing out of the sudden increase in the use of balloon tires continue to be the topic of lively discussion on both sides of the Atlantic. Papers dealing with various phases of the balloon tire situation were presented almost simultaneously before the (American) Society of Automotive Engineers and the (British) Institution of Automobile Engineers during the week of Jan. 19.

Berton J. Lemon's paper, read at the Detroit meeting, pointed out the need for a permanent supreme council representing all factions vitally interested in tire standardization and said that "only progress" will be reported "until a representative committee with power and backbone to use it is placed in permanent control."

An analysis as to the sizes of tires now being used, given in the accompanying Table 1, shows that only 11 balloon sizes are employed for original equipment. Nearly half of these are on 20-in. diameter rims.

One of the interesting conclusions reached by Colin Macbeth, who until recently was with the British Dunlop Rubber Co. in connection with their experimental and development work and who visited this country something over a year ago in the interest of international tire standardization work, is to the effect that, since balloon tires help to make cars more suitable for use over rough roads and render the car less likely to become mired when the footing is soft, the market for cars in countries where roads are poor or even non-existent should be greatly increased.

Mr. Macbeth contends that the longer ground contact of the balloon tires provide a greatly increased resistance to lateral skidding; that, when used with drop center rims they can be removed and replaced without tools; that they are less liable to injury when run deflated than are high pressure tires, and that when deflated they tend to cling to the rim even when the car is braked severely or when rounding corners.

Extracts from Mr. Lemon's paper, read before the S. A. E., follow:

TABLE 1—BALLOON-TIRE SIZES, PLIES, WHEELS AND RIMS USED BY AUTOMOBILE MANUFACTURERS TODAY

Nominal Tire Size, In.	Number of Manufacturers Using Each Size Tire	Overall Diameters, Wheels and Rims, In.	Percentage of Wheels and Rims in Each Diameter	Plies of Fabric		Rim Width, In.				
				4-Ply	6-Ply	3½	4	4½	5	6
29 x 4.95	1	20	49	1	..	..	1	..	..	..
30 x 5.77	4			3	1	..	4	..	..	..
32 x 6.20	22			22	1[a]	..	5	16	1	..
34 x 7.30	9			9	..	..	..	6	3	..
Total	36									
29 x 4.40	2	21	41	2	..	2	..	..	..	..
31 x 5.25	16			16	..	..	14	2	..	..
33 x 6.00	5			4	1	..	1	2	2	..
33 x 6.20	3			3	..	..	..	3	..	..
33 x 6.75	6			3	3	..	..	3	2	1
Total	32									
31 x 4.95	3	22	10	3	..	..	3	..	..	..
32 x 5.77	5			3[b]	3[b]	..	..	5	..	..
Total	8									
Totals	76		100	69	9	2	28	37	8	1
				78				76		

[a] One car manufacturer uses four and six plies, 6.20 = in. tires.
[b] One car manufacturer uses four and six plies, 5.77 = in. tires.

Signs Point to More Oversizing

"With an increase in demand for balloon tires, the question of sectional tolerance was discussed. An agreement was reached to limit tolerance to 2½ per cent oversize. At present, when we get some 6.00-in. balloon tires, they are nearer 6.20 in., and some 6.20-in. tires are nearer 6.40 in. Present signs point to another orgy of oversizing unless all religiously respect the 2½ per cent limit, and that applies equally to motor vehicle and to tire engineers.

"A glance at the sectional sizes of tires, Table 1, used on 20, 21 and 22-in. wheels, indicates that it appears possible from the standpoint of vehicle construction to confine overall tire heights to either a 20 or a 21-in.

"From the tire maker's standpoint, one main objection exists at this time to standardizing on an ideal program of 21-in. wheels; it is the amount of investment in tire-building equipment for tires already used on 20 and 22-in. wheels. So the tire maker cannot exactly be blamed for not voicing at once strong approval of a list of 21-in. ideal sizes, at least until such time as the change can be brought about without too sudden and great an equipment loss.

"This, too, is the position of many car, wheel and rim manufacturers. However, in spite of failure to advocate immediately and enthusiastically a simplified program by tire and vehicle makers, there is a decided undercurrent running through both industries for simplification, and a rather general belief that such procedure will be a satisfactory solution from both practical and economical standpoints.

"Rim widths for balloon tires vied with tire sizes in the early disagreement. Table 1 shows that this disagreement still persists. The advocates of the narrow rim cite lower weights and costs, better and less localized flexing, and therefore greater cushioning, with no unsatisfactory front end performance, if synchronized vibrations are cared for otherwise. On the subject of rim weights, a 28 x 4-in. rim differs from a 29 x 4½-in.

rim by 1.5 lb., and the latter differs from a 30 x 5-in. rim by 1.2 lb. The difference of cost between these consecutive sizes is about 50 cents per set. Flexing is better and less localized on a narrow rim. As to front end vibrations, some car makers have used the 4-in. rim with the 6.20-in. tire for one year and had no appreciable trouble.

"Wide-rim champions cite greater carrying capacity because of greater air volume, greater stability, less destruction to tires if run flat, easier steering, perhaps, and a reduction of costs where a tire of smaller sectional size can be adapted. Wider rims give somewhat greater air capacity, thereby permitting in some cases the use of the tire next smaller in size. For example, a 33 x 6.00-in. tire on a 5-in. rim has the same deflection as a 32 x 6.20-in. tire on a 4½-in. rim; that is, their load-carrying capacities for the same deflection are equal.

Few Failures with Narrow Rims

"In such instances as the 6.00-in. and the 6.20-in. tires one tire should be made standard and the other should be eliminated. The wide rim unquestionably permits less side swaying on turns and perhaps less bead and rim strain. As yet, however, there are no large number of failures of narrow rims in ordinary passenger car service.

"Due to varied practice of using one size of tire on rims of varied size, and vice versa, tire makers and dealers are faced with a complicated flap problem, since, to function properly each flap should fit the rim seat and the tire beads accurately without wrinkling. The flap situation would be simplified greatly by the adoption of a standard rim line up, using one size of rim for each tire size.

"Our opinion is that a satisfactory rim width is one that measures, between the flanges, from 60 to 65 per cent of the width of the inflated tire cross section. This does not mean that tires will not function well on narrower or on wider rims, for tires are doing so today, but the industries should simplify, adopt a standard and live up to it, as the most satisfactory solution of the rim problem.

What Controls Number of Plies

"The number of plies of fabric in balloon tires depends on the size, the strength and the spacing of the cords and the load to be carried. Tire manufacturing practice discloses differences mainly in the size and the spacing of the cords, but shows practically no difference in the number of plies, due to economic reasons. Regardless of the number of plies, the size and the spacing of the cords, sufficient fabric must be used in all tires to maintain a safe bursting strength factor as determined by road, hydraulic and bruising tests, under conditions comparable with maximum tire load and vehicle speed.

"On the other hand, because of constant flexing and the heat generated therefrom, and to secure a riding quality demanded of balloon tires, the number of plies and the amount of cotton must be kept at the lowest point consistent with the strength requirement. Ninety per cent of the car manufacturers use four-ply balloon tires. Six plies of fabric will not afford the flexibility of a four-ply tire of the same sectional size, because of the stiffer carcass and because higher inflations are advocated and logical.

"But riding comfort is not determined solely by tires. In the higher priced cars more care can be given to spring suspension and to the coordination of springs with tire inflations; therefore in such cars, it may be possible to adopt a stiffer tire, run at higher pressure, and still obtain satisfactory riding.

"Surface wear of a tire tread on the road is dependent mainly on tread profile, pressure, movement and materials. Pressure and movement are closely related to profile. Tread materials must be able to resist cutting, wear better than steel, and flex over 6,000,000 times in 10,000 miles of service.

"Physics teaches that confined gases exert equal pressures in all directions, so that any perfectly elastic casing inflated to 30 lb. per sq. in. and carrying a 1300-lb. load will flatten to a theoretical area of 43 sq. in. of road surface. A 6.20-in. natural wear profile tread four-ply Royal Cord balloon tire covers a gross area of 42 and a net area of 27 sq. in. under the above-named load and inflation. The average road pressure is therefore 48 lb. per sq. in.

"These differences between the theoretical area and the pressure, 43 sq. in. at 30 lb. per sq. in., and the actual net area and the pressure 27 sq. in. at 48 lb. per sq. in. amount in part to the load carried by the carcass and not by the air, and indicate the extent of strain concentrated on a certain undefined area of tire tread and carcass mainly adjacent to the region of road contact

Round Treads Minimize Road Contact

"When the tread of a balloon tire has a round profile the area of road contact is minimized, because the tread farthest from the center line does not come completely into contact with the road and therefore does not bear its proportionate share of the weight on the tire. As the tire deflects under load, the greatest wear occurs at points of greatest pressure and movement, and that is the cause of irregular wear on balloon tire treads.

"One remedy for irregular wear on round profile treads is to use a greater inflation pressure. Another method of reducing irregular tread wear is to design the tread so that it conforms to a profile to which the tire wears at its normal load and inflation.

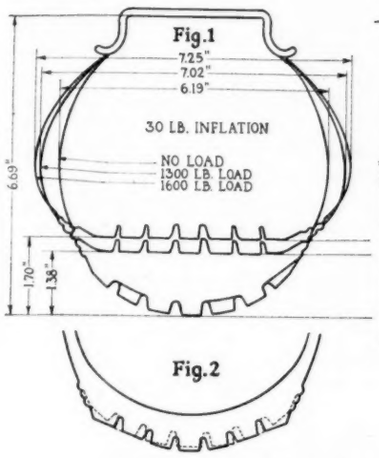
"We have adopted such a design; it is illustrated in Figs. 1, 2 and 3. The natural wear profile tread offers several advantages in comparison with the round tread; a greater road contact area, 27.0 sq. in. against 21.5 sq. in., a lower tread pressure and a reduced tread movement.

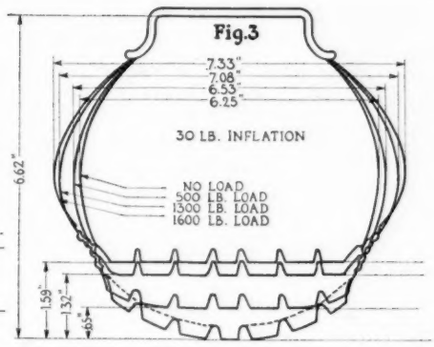
"Tests extending over a period of six months indicate that the natural wear profile tread produces longer and more even wear over a larger range of inflations, helps stabilize front end unbalance and reduces side sway and strain on bead and rim.

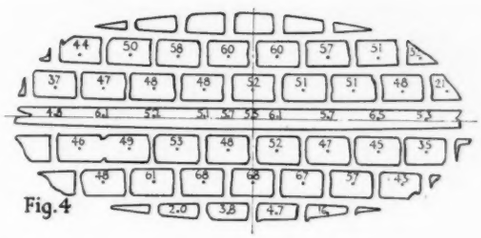
"We designed and tested our quota of treads in the search for one to give maximum traction and flexibility in all directions, stability, ease of steering and uniform wear over a reasonable range of inflation pressures. The result was the present Royal Cord balloon tread, built to the natural wear profile, having one central rib flanked on each side by three rows of sharp-edged blocks. This tread can be modified to become a composite Royal Rib design. This compromise, however, does not produce as good traction on wet asphalt, in snow, sand or mud as does the Royal tread.

When Flat Tread Gives Better Traction

"Results of a preliminary series of traction tests, Table 2, made with the Royal tread and the Royal Rib tread on dry asphalt and dry concrete, indicate no appreciable differences in traction between the two treads, or between the two road surfaces at a temperature below 40 deg. Fahr. However, on wet asphalt the Royal tread showed 15 per cent better traction and on asphalt covered with ¾ in. of snow 12 per cent better traction than does the combination tread. All inflation pressures were at 30 lb. per sq. in. Tape measurements for distances







Figs. 1, 2 *and* 3 *show the comparative shape of usual round and "natural wear" tire profile. Fig.* 4 *shows the tread contact area of* 32 *x* 6.20 *in. round profile balloon tire, while Fig.* 5 *is the same for a natural wear tread. Each tire supports the same weight,* 1300 *lb., and is inflated to* 30 *lb. pressure. Note contact area in Fig.* 4 *is* 21.48 *sq. in. and in Fig.* 5 *is* 26.30 *sq. in. Note greater support provided by outside row of blocks in latter case*

were supplemented by readings on the James decelerometer. All results are averages of a number of tests.

"Continually living with tires and testing them on the road and in the laboratory leads to the unmistakable conclusion that a tire will give its best service when run at a specific deflection that results from a definite fixed load and inflation. With high pressure cord tires that deflection varies with sizes from 9 to 13 per cent; with balloon tires from 18 to 22 per cent.

"No sound reason exists to prevent the majority of tire and automotive engineers from agreement upon a standard load-inflation table for balloon tires. It is just as important that the related industries get into prompt agreement regarding inflation pressures as it is concerning agreement upon sectional and overall height dimensions. The principal advantage of the balloon tire is its position for improved riding comfort. That should be

TABLE 2—TRACTION TEST, ROYAL TREAD AND ROYAL-RIB TREAD*

Speed, M.p.h.	Dry Asphalt, Ft.	Dry Concrete, Ft.	Wet Asphalt, Ft.	Light Snow-Covered Asphalt, Ft.
Royal Tread, One Rib and Six Rows of Blocks				
20	35	37	29	...
25	51	60	42	...
30	77	87	74	140
35	109	117	109	...
Royal-Rib Tread, Three Ribs and Four Rows of Blocks				
20	33	40	35	...
25	50	57	51	...
30	80	80	81	160
35	109	114	115	...

*The figures given are foot-brake stopping distances for a car equipped with two-wheel brakes.

kept clearly in mind. We lose this improvement if high inflation pressures are used.

"Under present go-as-you-please practice it is impossible for a tire manufacturer to uphold his contention that a certain deflection resulting from a definite load and definite inflation pressure gives best all around tire results. He must sacrifice fundamental principles and facts to engineering caprice and the haste of the moment and, in the scramble for orders that is exactly what he is doing.

"To indicate how closely tire manufacturers can come to agreement and yet not agree on a load and inflation table, Fig. 6 shows load deflection curves of four different well-known makes of 6.20-in. balloon tires. Makers of three of these tires, including those showing greatest and least deflections, have agreed on one table for the public, while the fourth company, whose tire falls between the extreme deflection limits, offers a different table. The greatest average variance in the two tables for any load is 2 lb. per sq. in. inflation, which is less than the small differences in carrying capacity of some makes of tire.

Puncture and Bruise Tests

"A series of puncture and bruise tests were run on four and on six-ply balloon tires with the following results:

(1) A nail or other sharp object penetrates or enters the tread rubber of a six-ply tire more easily than it does a four-ply tire, due to the greater rigidity of the six-ply carcass.

(2) The higher the air pressure is, the more easily the puncturing object first penetrates the treads of the two types of tire.

(3) Complete penetration of the carcass as well as the tube, after the object has entered the tread, is less difficult with a four-ply than with a six-ply tire. The difference in degree is about proportional to the carcass thickness.

(4) When a tire is dealt a heavy blow by a stone or rut and the obstruction does not drive the carcass to the rim, generally, a four-ply tire suffers less than one with six plies of fabric.

(5) Rupture of a balloon tire by bruising does not occur usually in stages of one ply at a time, except where the tire is first cut. The blow breaks either all plies or none. In this respect cord tires differ from those made of square woven fabric. Therefore, a balloon tire may endure thousands of reasonably heavy road-blows without damage, but be completely put out of service by one crushing impact.

"Preliminary tests definitely indicate that loss of pressure in tubes is due chiefly to diffusion through the rubber and not through the valve stem or about the valve base, since similar losses are obtained when the valve is sealed. Conclusions reached are that:

(1) Tubes in balloon tires, at both high and low inflation pressures, do not lose air more rapidly than do tubes in high pressure tires; generally they lose air less rapidly. However, the effect of such air loss is more detrimental to the balloon than to the high pressure tire, due to a lower initial inflation.

(2) In balloon tire tubes as made at present, the inflation pressure loss runs from 1 to 5 lb. per week, depending on the quality of tube, the length of time in service and the mileage of such service

(3) Tubes operated at both high and low pressures continue to lose pressure steadily in proportion to the nature of the gas used and to the thickness of the tube.

(4) Inflation pressure loss is greater for tubes

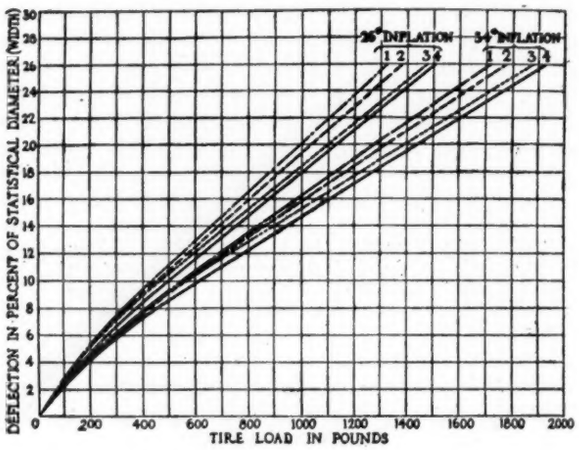

DEFLECTION IN PERCENT OF STATISTICAL DIAMETER (WIDTH)
TIRE LOAD IN POUNDS
26" INFLATION
34" INFLATION
1 2 3 4
1 2 3 4
0 200 400 600 800 1000 1200 1400 1600 1800 2000
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Fig. 6—Load deflection curves of four different makes of 6:20-in. balloon tires, showing "how closely tire manufacturers can come to agreement and yet not agree on a load inflation table"

running than for tubes static. The greater the daily mileage is, the greater the loss will be when measured at uniform temperature.

(5) A tube inflated with carbon dioxide loses pressure much faster than one inflated with nitrogen, the ratio being approximately the same as the rate of diffusion of these gases through a rubber diaphragm.

(6) The loss during the first day is higher in all tubes than for the second day. Thereafter, pressure decreases slowly.

(7) Balloon tire experience clearly points to the need of more frequent inspection of inflation pressure than has been customary with high pressure tires. Once a week is not too often even when tubes are in first class condition.

"In an endeavor to measure vibration roar in closed cars, some experiments were made with an audiometer, developed by the Western Electric Co. and described in detail in a bulletin issued by that company.

"Only small variations were shown between audiometer readings for balloon and high pressure tires on the same car. It is evident, therefore, that the use of balloon tires does not generally increase noises in closed cars, as determined by audiometer measurements.

"Only minor differences were noted when windows were open and when they were closed. Readings were slightly higher with closed windows. Engine noises, especially in the four-cylinder car, far exceeded those from other sources. Traveling upgrade or in second speed materially increased engine noises.

"The surest solution of the balloon tire problem is a closer exchange of real facts, an understanding that amounts to an informal conspiracy among all concerned to promote a diffusion of the best knowledge we have of the tire's virtues and shortcomings."

What a British Engineer Thinks

Portions of the paper presented before the I. A. E. by Mr. Macbeth are given in following paragraphs:

A tire of given outside diameter when distorted more vertically must have a longer area of contact on the road. In practice, with the low pressure tire as in general use today, the increase in length of contact is about 22 per cent as an average, compared with about 31 per cent increase in sectional size over high pressure tires used for the same type of cars and loads.

This does not mean that there need be an increased contact width, and any increase in such a direction will increase the resistance to traction. This point can be dealt with comparatively easily by the tire designer.

Normal high pressure tires of non-skid type are loaded to from, say, 75 to 120 lb. per sq. in. of contact area, according to the practice of the designer and according to the relative importance of gripping as compared with wearing.

Low pressure large section tires, with their increased contact length, provide a greatly increased resistance to lateral skidding, and in practice, with wheels locked, such tires are very effective as regards holding the car straight. This can be stated definitely on all surfaces other than those having thick, half-dried, clay like mud, which resists penetration by the non-skid pattern. This increase in gripping power does not apply when the non-skid pattern is worn off, as in this state high pressure tires generally grip better. Also, it should be realized that the relative merits of the two types may be reversed if the tread design is not good.

In theory, the increased length of contact, in conjunction with a normal width of contact, would mean that the tire was not able to get a firm grip on the road, but in practice the low pressure tire, when loaded to about 50 lb. per sq. in. of contact area, is markedly better as regards "grip" than normal non-skid tires, apparently due to the increased length of buttress edge on the tread, which is approximately 23 per cent.

The greater length of contact means that with a normal tread width there is always an increased area of tread in contact with the ground at any one time. Time and extended experience alone will prove whether this gives a longer tread life or not.

Reduction in internal pressure, combined with greatly increased flexibility, makes low pressure tires much better able to resist punctures. If the tire can give to, or "swallow," the obstacle sufficiently, it will not be damaged or penetrated.

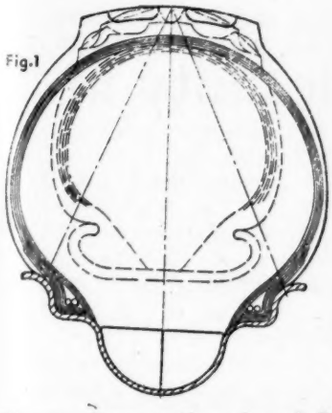
Low Pressure Tires Not Easily Punctured

Mere reduction in pressure and increase in section will not make a tire puncture-proof, but in conjunction with a satisfactory tread and casing construction they guard effectually against all but very abnormal road obstacles. The low pressure tire is more "receptive," but much less easily penetrated by obstacles.

All motorists object to having to fit or take off tires. A new clincher tire is always hard to fit, and the used straight sided tire is often difficult to handle, due to rust, which causes the tire to stick on the rim, and to damage in handling the flap when used. Also, all known tires require tools for fitting purposes; in fact, normal tires cannot be said to be easy to handle.

In evolving the low pressure tire the author took advantage of the increased lateral spacing of the beads to use a drop center rim, as used on wired-on cycle tires for so many years, and thus made feasible the adoption of a wired-on motor tire with a one-piece rim. This makes simple the problem of keeping out water. Fig. 1 shows the type of tire evolved as compared with the usual high pressure beaded edge tire.

The drop center rim adopted with the low pressure tire makes it easy to fit and take off the casing and tube at



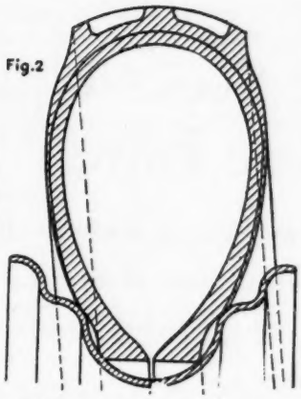


Fig. 1—Comparative size of British high and low pressure tire, latter mounted on drop center rim. Fig. 2—How beads are sunk into the well of the drop center rim in order to make mounting and demounting easy without tools, still using a one-piece rim

the same time by the fingers alone, and at no time are tools necessary. Fig. 2 shows the facility with which tire beads can be sunk in the well at one side in order to make detachment and attachment easy.

Criticisms have been raised against the large section tire to the effect that they would be dangerous when run deflated when burst suddenly, and that they would not survive when run any appreciable distance in deflated condition.

In practice, repeated tests show beyond question that—

(a) Such tires are much less liable to damage when run fully loaded in deflated condition than is the case with high pressure tires.

(b) When deflated, the tires cling to the rims even when severely braked and when run round corners.

(c) When suddenly burst intentionally there is no danger due to the drop, and the casing stays on the rim and does not become jammed in any way.

Reduced wheel diameter means more rapid acceleration and also greater range of brake control before the wheels become locked, by reason of the light periphery of the wheels.

How New Mixture Distributor on Chevrolet Works

IN the description of the new Chevrolet model K engine which appeared in a recent issue of AUTOMOTIVE INDUSTRIES, a mixture distributor was mentioned as being part of the intake manifold system. As illustrated by Fig. 1, this device consists of a tubular jacket which incloses a metal strip, the latter being corrugated and wrapped to resemble a nest of small parallel tubes or cells. The inner unit is spot welded to the jacket at the abutting ends of the original strip and at a point diametrically opposite. The outer shell is flanged at the outer end and made with a slight choke at the inner end. The inner end of the inner unit stops somewhat short of the choke at the inner end of the jacket.

When installed in each of the siamesed intake ports, the device is secured by the outer flange at the gasket joint between the intake manifold and cylinder head casting. The inner end of the distributor is located close to the two valve openings. The arrangement is such that the intake stream makes substantially a sharp right angled bend as it leaves the distributor and enters the open valve.

This device is based on a study of the action of present day heavy fuels and their action in intake manifolds. Glass manifolds of approximately conventional type have revealed a definite spiral action of the liquid fuel which adheres to the inner walls. This spiral stream does not travel within fixed limits but shifts with practically every change in speed, throttle and load conditions.

From the above the difficulty of obtaining equal qualitative distribution is apparent. The carbureter setting is a compromise between the rich conditions of one pair of cylinders and the lean tendency of the other pair. In order to obtain fairly easy starting and something like good low speed performance, the setting is usually rich. Then fuel slops into one pair of cylinders and hampers lubrication conditions and causes carbon.

It is the purpose of this distributor to pick up the large spirals of liquid fuel and the eddies in the gaseous current which follow changes of direction and convert these first into smaller units and then straighten them. This is done by the inner corrugated member which is, in effect, a group of rather small gas passages with a high length-to-cross section ratio. The large eddies and swirls are separated into small sections, which are thus straightened and leave the device in parallel. As the proportion of liquid in the intake stream is greatest at the outer walls, the outer cells of the inner unit probably transfer more liquid than the inner, so that the stream is not altogether homogeneous. For this reason the choke is placed at the inner end of the distributor and the intake stream is given a sharp bend.

The choke tends to throw these liquid particles across the main stream, so that they can be carried to either valve with equal facility. The merit of this device can be checked by the smoothness of operation at idling speeds. Also, when the engine is warm the fuel needle can be screwed down so that practically all four cylinders cut out simultaneously whereas in many four-cylinder engines, under the same conditions, two cylinders, usually the middle pair will cut out somewhat ahead of the others. In addition the effect of these distributors can be noted all along the line, acceleration is better and smoother and a considerable portion of engine vibration is eliminated. While no comparative mileage tests are available, it is reasonable to assume that the improved distribution will result in somewhat greater mileage.

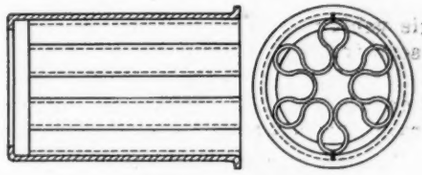


Fig. 1—Mixture distributor installed at the siamesed intake ports of the Chevrolet Model K engine

A BIENNIAL survey, just completed by the Census Bureau, of the automobile body polish and allied polish manufacturers in the United States show that during 1923 there were 298 such concerns in existence, which did a business of $35,443,130.

Conference Committee Seeks Uniformity in State Vehicle Laws

Recommendations on size, weight and speed made by M. V. C. C. Maximum width of 96 in., including load, is urged. Taxation suggestions advocate that State be the sole taxing agency.

THAT restrictions on motor vehicle sizes, weights and speeds should be uniform in all States is scarcely open to question. To effect uniformity the Motor Vehicle Conference Committee, representing the American Automobile Association, the Motor and Accessory Manufacturers' Association, the National Automobile Chamber of Commerce, the National Automobile Dealers' Association, and the Rubber Association of America, have made specific recommendations.

That there are many divergences from uniformity in the various State laws at the present time is obvious from even a cursory examination of the restrictions. Florida restricts the width of vehicles to 84 in., North Carolina restricts the weight to 11,000 lb. capacity on State highways, and Tennessee allows a maximum speed of only 20 miles per hour.

The Conference Committee's recommendations are:

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1. Width, including load, 96 in. (Traction engines, 108 in.)
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3. Length, including load: Single vehicle, 30 ft.; combination of vehicles, 85 ft.

NOTE.—From the foregoing it is apparent that in order to admit of the safe passage of two vehicles each of which with its load is 96 in. wide, a highway at least 20 ft. wide is desirable.

Weight Restrictions

1. Single vehicular unit of four wheels or less (tractors and semi-trailers to be regarded as separate units), 28,000 lb.
2. Any one axle of the vehicle or any additional axles of semi-trailers or trailers, 22,400 lb.
3. Per inch width of tire, measured between flanges of the rim in case of solid rubber tires:

Size of Tire	Load Per Inch (Maximum)	Size of Tire	Load Per Inch (Maximum)
3 in.	400 lb.	7 in.....	750 lb.
3½ in.....	400 lb.	8 in.....	800 lb.
4 in.....	500 lb.	10 in.....	800 lb.
5 in.....	600 lb.	12 in.....	800 lb.
6 in.....	700 lb.	14 in.....	800 lb.

4. Minimum thickness of rubber for solid rubber tires:

3-in., 3½-in., 4-in., 5-in. tires.....	⅞ in.
6-in., 7-in., 8-in. tires.....	1 in.
10-in., 12-in., 14-in. tires.....	1⅛ in.

Speed Restrictions

No motor vehicle should be operated at a rate of speed greater than is reasonable and proper, and should not in any event run at a rate of speed in excess of 15 m.p.h. on an urban street, 20 m.p.h. on a suburban street, or 30 m.p.h. on any other street or highway.

Special Permits to Raise Restrictions

State, county or municipality should be empowered under definite limitations to grant written permits for the movement of vehicles bigger and heavier than those allowed by law when it is imperative.

Special Permits to Lower Restrictions

The power of the State, as centralized in its highway departments of the county or local authorities, should have the power, after consultation with and permission from the State Highway Department, to reduce the weight or speed restrictions to preserve the highways or safeguard travel to meet conditions of bad frost or other similar contingencies.

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Except as indicated, the subordinate political subdivisions of the State, such as counties, cities, towns, boroughs, etc., should have absolutely no power to prescribe size, weight or speed restrictions at variance with those allowed for the State as a whole.

Those States in which restrictions differ to some considerable extent from those recommended by the Conference Committee at the present time are outlined in a table on the next page.

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Special powers to lower or raise weight restrictions can be revised by proper officials in charge of highways, county, municipal or State, where it becomes necessary. In California, City Departments of Public Works issue permits for increased weight; in Connecticut it is the State Highway Commissioner; in Illinois, officials of streets or highways; in Maryland, Massachusetts and Michigan, highway officials; in Ohio, highway commissioners; in Pennsylvania, the State Highway Commissioner, and in Texas the State Highway Commission.

Regulation Involves Two Considerations

The regulation of the actual physical characteristics and physical operation of motor vehicles used as common carriers is outlined above. The second important consideration is the regulation of the business engaged in by motor vehicle common carriers. After an investigation the Conference Committee formulated the follow-

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3. As a pre-requisite to the operation of the Motor Vehicle Common Carrier, the owner thereof should be obliged:

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b. To take out liability insurance adequate to indemnify injuries to persons or damage to property resulting from negligent operation.

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2. There are no facts or statistics in existence which show the amount of uncompensated losses due to motor vehicle accidents.

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Actual or potential taxing jurisdiction is vested in the Federal Government, the State governments and in municipal governing bodies. The taxes levied are either general or special. General taxes are those levied indiscriminately upon all classes of property for the purpose of raising money to conduct the general functions of government.

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Col.		16,000 lb. on four wheels	35
Conn.	Width 102 in.		
	Combination length of vehicles 40 ft.	25,000 lb.	
Del.	Height 12 ft. 2 in.	22,000 lb.	30
Fla.	Width 84 in.	16,000 lb. on pneumatic tires	30
	Height 12 ft.	8,000 lb. on solid tires	
Ill.	Combination length of vehicles 65 ft.	24,000 lb.	35
Ind.		15,000 lb.	25
La.	Width 84 in.	15,000 lb. on rear axle	35
Me.		18,000 lb. on four wheels	35
Md.	Width 90 in.	20,000 lb.	25
	Traction engines 100 in.	Vehicle with rated carrying capacity of more than 10,000 lb. not registerable	
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Miss.		12,000 lb. carrying capacity	
Neb.	Width 90 in. Height 12 ft.		
N. H.		20,000 lb.	
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Adjustment of General and Special Motor Taxation on the basis of use of motor funds for such highway improvement as does not constitute an unfair burden on the individual motorist. This theory, which is steadily gaining ground in the United States, holds that the amount of special taxes levied against the individual motor user shall not constitute an unfair burden. This amount determined, such funds shall always be limited to improvement of highways of general motor use and shall be devoted first to maintenance costs. In States where a surplus remains after such motor highway maintenance needs have been cared for, this surplus should be used to pay a substantial share of all other costs of highways of general motor use or may be used to defray all or part of the costs of bond issues to expedite construction of economically desirable motor highways.

State as Taxing Agency

The Motor Vehicle Conference Committee is strongly impressed with the fairness and economic wisdom of the above theory and using it as a basis has set up a code of "Sound and Equitable Principles to Control Special Taxation for Motor Vehicles," which in its judgment should underlie all laws dealing with the subject. They are:

1. The State should be the sole special taxing agency --Federal, County and Municipal Governments should be excluded from the field.

2. The motor vehicle tax should be simple in form and distributed in equitable and just proportion between the different types of motor vehicles.

3. No highway should be improved by expenditure of public funds in excess of its earning capacity. The return to the public in the form of economic transportation is the sole measure of the justification for the degree of improvement.

4. All money raised by such special taxes should be placed in the State Motor Vehicle Highway Fund and to secure the best results should be expended under the direction of the State Highway Department.

5. The cost of building and maintaining adequate systems of highways should be distributed in an equitable relation to the benefits derived. These may be summarized as follows:

(a) Benefits to society in general, such as influence on education, recreation, health, fire prevention, police protection, the national defense, the postal service, living and distribution costs.

(b) Benefits to definite groups, such as agriculture, manufacture, labor, railroads, mining, forestry and waterways.

(c) Benefits to property served.

(d) Benefits to the road user.

6. For the purpose of apportioning costs in relation to benefits received, all highways may be divided into two classes; first, those used by the general motoring public, and second, those which perform a purely local service function.

7. Special motor vehicle taxes should be levied and used only for the improvement and maintenance of highways used by the general public, i. e., for general highway traffic flow lines.

8. The wide variance in valuations, tax burdens, number of motor vehicles in use and the status of highway development in the several States prevent the adoption of any fixed formula as to the proportion of the total costs of highways of general use which should be paid for from motor vehicle funds. Generally speaking, however, these principles may be set forth:

(a) In States where the income from motor vehicles is insufficient to meet all of the maintenance costs of highways of general motor use without undue burden to the individual motorist, such funds should be applied first to the maintenance of inter-State and State highway systems.

(b) In States where the income from motor vehicles is sufficient to meet all maintenance costs of highways of general motor use without undue burden to the individual motorist, any surplus should be used for this class of highway reconstruction and administration costs.

(c) In States where the number of motor vehicles will bring in large sums in excess of maintenance without placing undue burdens upon the individual motorist, such surplus should be used to defray all the costs of maintenance and a substantial share of all of the other costs of highways of general motor use.

(d) In those States where the motor vehicle income is more than sufficient to meet maintenance costs of highways of general motor use without undue burden to the individual motorist, it may be found advisable to use such surplus for the purpose of defraying all or part of the costs of bond issues to expedite construction of economically desirable motor highways.

9. Roads of purely local interest, serving only local needs, should be financed out of local revenues obtained from local general taxes. Special assessments on adjoining land to defray a portion of the costs of such roads may be justified.

10. Where extraordinary improvements are undertaken in the vicinity of or serving congested areas of population, the increment, if any, in property valuation following the improvement should be drawn upon to defray an equitable portion of the cost.

11. Irrespective of the particular form of special tax of the motor vehicle, whether registration fees or motor fuel taxes, the aggregate amount of these taxes in any one year should not be so great as to impose an undue burden on the individual motorist.

Alcohol Is Approved As Anti-Freeze Solution

AFTER a series of many tests made by the Bureau of Standards, of various anti-freeze solutions, the Government has placed its stamp of approval on alcohol as being the best for use in automobile cooling systems as a preventive measure for freezing of internal combustion engines. Engineers of the Bureau have determined that alcohol retains its place as the most satisfactory in all particulars.

A warning is issued, however, that if wood alcohol is used, care must be taken that it does not contain acid which is likely to corrode the radiator or other parts of the water circulation system. The one great drawback to use of alcohol is that it evaporates from the solution and has to be replaced. Glycerine does not have this drawback, but it is more expensive.

Among the anti-freezing solutions investigated by the Bureau were calcium chloride, honey, glucose, kerosene and several patent anti-freezing mixtures. Use of kerosene is not recommended because it has a tendency to cause overheating. Calcium chloride, with a decided corrosive action, is liable to cause short circuits if it gets on the ignition wires or spark plugs. Honey and glucose were found unsatisfactory in that a high percentage solution is required to prevent freezing and such solutions flow very slowly. Of the last named the Bureau warns against sugar deposits in the cooling system.

What "Ket" Saw and Heard in Europe and Africa

By Herbert Chase

"Ket"

WHAT did "Ket" see and hear in Northern Africa and Europe?

That's what a lot of engineers in the industry have been wondering ever since Charles F. Kettering, president, General Motors Research Corp., got back recently from an overseas journey which took him into parts of the world sparsely populated by automobiles and rarely visited by automotive executives as well as to the well-worn paths of England, France and Germany.

Seeking to satisfy the general curiosity, we cornered "Ket" (we might as well call him that in public because everybody does in private) in New York during show week and asked him a lot of leading questions, most of the answers to which now can be told.

Ket's mission in Africa was to seek out deposits of certain minerals required in large quantities for a product which General Motors uses in the manufacture of the cars it builds. While he was away his co-researchers at home double crossed him. They developed a process for making from domestic materials the very material for which Ket searched!

But that wasn't bothering Ket much when we saw him. He was full of so many other ideas about what he had seen that a detail like mineral deposits was hardly worth talking about. After he had talked of nitrogen fixation processes in Germany; what he thinks about small cars in Europe; his ideas on fabric bodies and a multitude of other questions, the only thing we could think of for a few minutes was the old rhyme from Alice in Wonderland:

> "The world is so full of a number of things,
> I'm sure that we all should be happy as kings."

After we came away, however, we began to sort this from that—and here is the result:

Concerning the nitrogen fixation plants which he visited Ket said: "During the war the Germans developed nitrogen fixation plants to supply their need for high explosives. Since the war their plants have been turned over to the manufacture of commercial fertilizers, and they have been successful in doing a very good job.

"One thousand tons of nitrogen is being fixed each day in the form of ammonia, the nitrogen being secured from the air, first by liquefying the air, then by fractional distillation of the nitrogen. The hydrogen is obtained through the water gas process, steam being fed into retorts containing incandescent carbon. The end products are hydrogen and carbon monoxide.

"These materials go through a process for purifying the hydrogen. The nitrogen and hydrogen then are pumped, at a fairly high pressure, into reaction bombs, where, in the presence of a catalyst, synthetic ammonia is formed. In addition to ordinary fertilizers great quantities of urea are produced, which is a carbon monoxide group with two NH_2 groups. This is a more expensive fertilizer, used in connection with greenhouse production, and is also used as a food for cows, taking the place of the ordinary oil meal or cow cake as a method of supplying nitrogen."

Like other American observers, Ket was impressed with the great popularity small cars have gained abroad. But he doesn't look for any similar development of diminutive vehicles in this country in the near future. He does believe, however, that "there isn't the least question but that many cars, smaller than are common in America today, will be seen on our roads before many years have passed. Traffic congestion," he says, "will give impetus to the development of such cars, especially in metropolitan areas where driving a large vehicle is becoming more difficult every day."

British Like American Advertising

Ket was much interested in what he regards as an awakening of our British cousins to the appeal of the American type of advertising. He saw many indications that our style of advertising is coming into vogue there and he thinks it will have a highly beneficial effect on British merchandising.

Extensive use in France and England of the Weymann type fabric body is noteworthy, in Ket's view. He was impressed by the light weight and other features of this general type of construction.

"The sort of thing for which we must strive in automobile design is a car in which the owner is practically unconscious of the fact that a mechanism exists, which requires a minimum amount of attention from the user and which is always ready for service at a moment's notice."

Ket took due notice of the fact that gasoline in England now sells at about the same price as in this country and is of approximately the same grade. "No longer is British gasoline the comparatively volatile fuel which for years has been sold in tins," Ket says. "Roadside pumps now are quite the rule in England and many are being introduced in France.

"The lowered quality of fuel naturally has brought

about the same difficulties which its use here developed. In England the poorer fuel has resulted in some decrease in engine compression ratios, but in France they still are quite high. Anti-knock gas is sold in a limited way in France. No effort has been made as yet to market it on a large scale in that country."

Speaking of the industry at home, Ket expressed considerable disappointment over the lack of originality and new things at the recent New York show.

"Easy riding and a seat construction which fits the human body are going to become factors in the future design of automobiles. What may seem a comparatively small item of this character," he said, "may have a great deal to do with the popularity of a given car. There are a great many comparatively small items about the motor car situation which can be modified and may become determining factors in the sale of cars.

"I think that the present lull in development work in the automobile industry has been due largely to a notion in the minds of the automobile industry itself that their cars have almost approached perfection. The industry might well do more in the way of studying those items which are responsible for owner satisfaction or its reverse."

Processes Used for Making Synthetic Gasoline

THE petroleum which we pump from the earth was undoubtedly formed in prehistoric times from either animal or vegetable material, and if we could learn the secrets of the processes by which Nature worked in composing the hydrocarbons that form the constituents of crude oil we might possibly duplicate them with the agencies at our command and produce gasoline and the other derivatives of crude petroleum artificially.

Considerable progress along this line has been made by scientists during the past twenty years, and several methods for making gasoline synthetically are now known. It is true that all of these processes are still in the laboratory stage, and they are likely to remain so for some time to come, except possibly in districts which may happen to be cut off from the natural sources of crude oil. One reason for this is that when Nature formed petroleum there was no labor to be paid for, neither were there any overhead charges, hence it is difficult to compete with her commercially. However, the discovery and development of these processes will serve to relieve the automobile industry of any apprehension regarding the possible failure of the crude oil supply in the near future.

The oldest process for making gasoline (or, in other words, the lower members of the paraffin and ethylene series of hydrocarbons) synthetically is that of Sabatier and Senderens, who about twenty years ago discovered that if a current of acetylene and hydrogen is passed at about 400 deg. Fahr. through a reaction tube containing finely divided nickel acting as a catalyst, a clear brownish liquid is obtained by condensation which has the odor of petroleum and upon analysis is found to contain practically all the paraffin hydrocarbons usually contained in gasoline.

A Second Process

The second process consists in the hydrogenation of animal and vegetable oils by catalytic processes. The possibility of the conversion of such oils into hydrocarbons of high volatility was first discovered by Engler a good many years ago, while recent work in this field has been associated chiefly with the name of Professor Maihle of Toulouse University. The latter has shown that when such oils are subjected to temperatures of 950-1200 deg. Fahr. in the presence of certain catalysts (of which he has investigated a good many) the oil is broken up into hydrogen, methane, carbon monoxide and the lower liquid members of the paraffin and ethylene series of hydrocarbons. From rape seed oil, for instance, he obtained 19.5 per cent of paraffin hydrocarbons and 47 per cent of ethylene hydrocarbons.

The latest of the three processes is that of Prof. Franz Fischer of the Coal Research Institute of Muhlheim on the Ruhr. Fischer starts with water gas, which is generated in gas producers employing coal and water as raw materials. Water gas contains a great deal of carbon monoxide, this gas being, in fact, its chief fuel constituent. It was found possible to hydrogenate this gas in the presence of a strong base or an alkaline carbonate by the use of a metallic catalyst such as iron, nickel or cobalt. Fischer worked at temperatures of 750-840 deg. Fahr. and under pressures of 125-150 atmospheres (conditions which probably are similar to those which obtained in the interior of the earth when the petroleum veins were formed). He obtained a liquid product of acid reaction which upon analysis was found to be composed of organic acids, alcohols and a few hydrocarbons.

Some Constituents Found Unstable

Many of the constituents of this liquid, called synthol by Fischer, were found to be unstable at high temperatures, and by heating synthol to 800 deg. Fahr. in a retort a liquid called synthene was produced which has properties very similar to gasoline. Even the original liquid, the synthol, can be used in internal combustion engines, having combustion properties very similar to those of benzol.

In Paris a Congress of Synthetic Petroleum was held a short time ago, at which the processes here outlined and several others were discussed at length, and interest in France in connection with engine fuels seems to be switching from the so-called "national fuel," composed of 10 per cent alcohol and 90 per cent gasoline, which has not met expectations, to synthetic gasoline. The process for the conversion of vegetable oils is of particular interest to France, as such oils can be produced in Southern France and to even better advantage in the large African colonies of France, and a fuel which is 100 per cent home grown naturally appeals more to the patriotic (as well as the commercial) spirit than one incorporating only 10 per cent of native products.

It appears that already the interest aroused by the congress is being taken advantage of by unscrupulous promoters, and a number of the more conservative scientists in France have issued a warning to prospective investors that the various processes which have been brought to public attention are still in the experimental stage and that "there's many a slip" between a successful laboratory experiment and a dividend-earning exploitation.

H. KERR THOMAS has been elected president of the Institution of Automobile Engineers (England) for the Session 1925-6, the four vice-presidents for that session being Major E. G. Beaumont, A. E. Berriman, L. H. Hounsfield and Major Charles Wheeler.

Just Among Ourselves

Motor Boats Get in the Limelight

TALK about major increases in motor boat use continues to go the rounds, particularly in Detroit. T. J. Litle, Jr., Lincoln Division, Ford Motor Co., newly chosen vice-president of the S.A.E. announced at the annual meeting of the society that more attention was going to be given to motor boats by the engineers in 1925 and that special meetings would be held to discuss motor boat problems. It is the opinion of one prominent automobile engine builder, however, that it will be a long while before the motor boat field reaches any proportions which automobile men will call large. He says this despite the fact that his company is about to build some power-plants for a new motor boat development.

Shows Are Over, but Design Changes Aren't

THE big national shows are over. Many new models and improvements have been brought out in the last few months, culminating with a lot of new things at the New York Show. But it's not all over yet. There will be some very interesting changes in several cars before the next three months have passed or we will miss our guess. Developments in brakes seem likely along with other units of equal importance.

Number of Persons Per Car Decreasing

THE village of Marcigny, with 2052 inhabitants, holds the French record of one automobile for every 23 persons. This compares with one car per 53 persons in Paris. The figure for the United States as a whole now is approaching one motor vehicle for every seventh inhabitant. We haven't found the town which holds the record over here, but there must be some areas in which there is an automobile for every fourth or fifth person. Walking down the main thoroughfares of some of our cities we often feel sure that there must be at least 100 automobiles per person as far as we can see—which usually isn't very far.

Mailing Lists—Good and Bad

WONDER if anybody ever tried to figure out how much money is wasted every year by automotive advertisers in sending direct-by-mail literature to out-of-date lists? We haven't heard of such a figure, but without knowing just what it is we would be willing to give up our present job and live on our income if some philanthropist would endow us with a similar amount. A cheap mailing list sometimes is the most expensive thing that an advertising manager can buy; an accurate one, on the other hand, is likely to bring back its weight in gold. Mailing addresses change rather quickly in some parts of the automotive business and constant effort is necessary to keep mailing lists correct. But it can be done—and the doing is worth while.

Business Speakers and Spellbinders

THE day of the political spellbinder hasn't passed yet, but its twilight is approaching rapidly. Business usually is a step ahead of politics. It should be ahead in this respect. Having attended numerous dealer meetings and luncheons in recent weeks we are pleased to record the fact that talks made by factory executives to dealers were almost uniformly practical and frank. In nearly every case the salesmanagers and factory presidents got up and talked to the dealers in a sincere frank manner and left with the retailers a correspondingly good impression. The same can't be said for the professional spellbinders.

What Would They Think Today?

MRS. H. P. of Jackson Heights, L. I., writes to commend the health giving qualities of motor vehicles and to give us a quotation from an 18th century propounder of "Lessons for Youth" to show how prophets often go wrong. In view of the proved value of the automobile from the standpoint of health, the extract from these "Lessons" is interesting. It was issued by the Committee for Management of the West-Town School, Pa., in 1799. It reads: "With respect to exercise, the various machines that have been invented for every sort of work, render bodily strength of less importance than formerly. The traveling on horseback, though a less vigorous exertion of strength than walking, is not luxury, but an healthful exercise. This cannot be said of wheel carriages. A spring coach, rolling along a smooth road, gives no exercise, or so little as to prevent no disease. It tends to disable the body as well as the mind. The increase of wheel carriages within a century is a remarkable proof of the growth of luxurious indolence."

Exercise In and Out of Motor Cars

COMMENTING on the quotation Mrs. H. P. suggests that even car owners walk a good deal and that if they live in a big city they get enough exercise dodging traffic to keep them fit without a daily dozen. We might add that riding in some cars on some roads has been known to provide exercise as well as fresh air.

N. G. S.

Upsetting Machine Lowers Cost of Production on Certain Kinds of Forgings

No draft required by the process and central holes, where required, can be punched in the blank, so the machining cost is reduced. Dies required are simple and inexpensive.

ONE of the methods of fabricating blanks for parts of forgeable steel is by means of the upsetting machine. This process appears to be particularly advantageous where shafts have to be provided with flanges or enlarged sections at one end, but it is also used for many other parts. Thus rings for ball or roller bearings, as well as gear blanks, are frequently made in upsetting machines.

The method by which simple ring forgings are made is illustrated in Fig. 1, which is taken from a recent publication of the American Forge Company, Chicago. To produce a ring of 8½ in. outside diameter, 4¼ in. inside diameter and 2¼ in. face, round bar stock of 4¼ in. diameter is used.

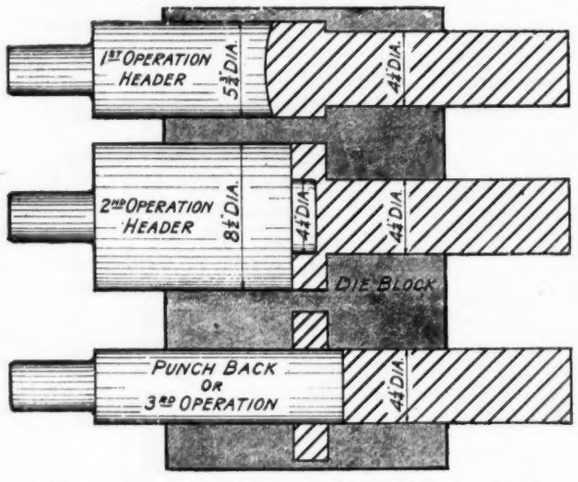


Fig. 1—Operations in producing a ring forging in the upsetting machine

The dies are in three separate units, viz., a stationary die in which the operator places the stock; a movable die, perfectly matched, which moves forward a distance equal to the length of the stock required to make one forging, and also grips the stock to prevent slipping; and the heading tools that force the stock into the different die impressions.

Referring to the illustration, in the first operation the stock is upset to 5¾ in. diameter; in the second operation it is upset to the full 8½ in. diameter and the forging pierced part way, and in the third operation the forging is pierced completely and the bar pushed free from it, after which the latter is returned to the furnace for reheating. One of the advantages of upset forgings is that they require no draft and that, as a consequence, they usually can be made more closely to size than other kinds.

Another advantage connected with the up-setting process is that the dies required are all of very simple form and can be produced completely by boring and turning operations. This naturally makes the cost of the dies low.

The closeness with which upset forgings can be made to finished size results in savings to the purchaser in two ways. In the first place, he does not have to pay for so much material, which is of special importance if expensive alloy steels are used; in the second place, not so much stock needs to be cut away and hence the cost of machining operations is reduced.

One of the parts requiring an upsetting operation is the crankshaft with integral flywheel flange. In drop-forging the crank a bob of material is usually left at the driving end, and after the crank throws have been formed in the drop press this bob is brought to red heat in the furnace and is then formed to the required shape in the up-setting press in several operations. In earlier years the flanges on crankshafts were drawn out by steam hammers, but this method, we understand, has now been generally replaced by that involving the use of the upsetting press.

One of the first automotive parts the writer saw produced by the upsetting process was a rear axle shaft for a car with a spur type differential gear which had the so-called side gears of the differential forged integral by upsetting. This type of differential is not widely used at present, and in the case of the bevel gear differential it seems preferable to have the side gears separate parts, for convenience in gear cutting. However, rear axle shafts for full floating axles often have an integral flange at the outer end for the driving clutch, and shafts for three-

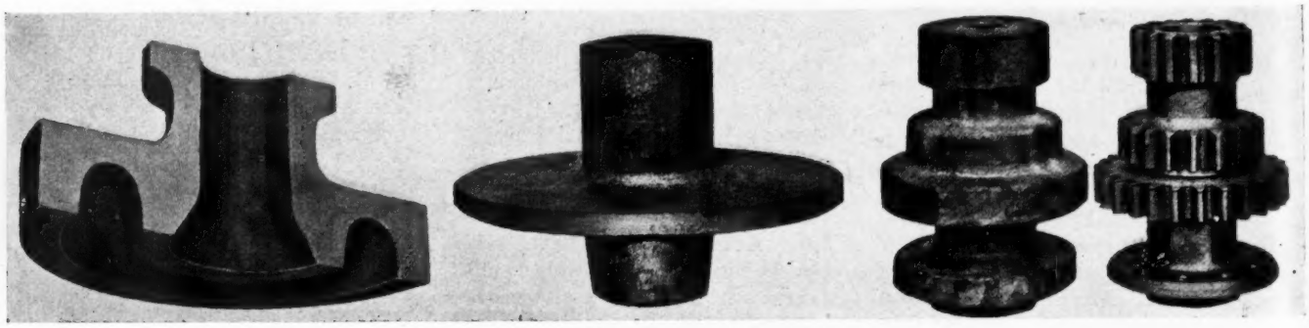


Fig. 2, left—Gear blank made in upsetting machine. Fig. 3, center—Hub flange made in upsetting machine. Fig. 4, two shown at right—Cluster gear blank and completed gear

quarter floating axles are sometimes made with integral hub flanges, which evidently would lend themselves to production in the up-setting press. It is obvious that an integral flange, especially one which has to transmit a comparatively large amount of power, makes a better form of construction than one that is keyed or splined to its shaft, and in most cases at least such integral construction will also be cheaper.

A part that seems to lend itself particularly well to production in the upsetting machine is the transmission drive shaft with the pinion of the constant mesh set of gears. The pinion is forged hollow, because it has to be bored out for the pilot bearing. At the plant of the American Forge Co., Chicago, such transmission drive shafts are produced on a 7-in. upsetting machine at the rate of 650 per day.

Among other parts for automobiles that are produced in up-setting machines may be mentioned gear clusters for transmissions, combined worm wheels and shafts for steering gears, wire wheel hubs and hub flanges. In connection with gear blanks produced by the up-setting method the claim is made that the fiber of the metal at the teeth runs in a radial direction, which adds to the strength of the teeth.

New Air Cleaner Has No Moving Parts and No Dust Receptacle

HAVING no moving parts and no dust receptacle, the new air cleaner made by the Handy Governor Corp. of Detroit is an exceedingly simple unit. Combined with this simplicity is said to be a high degree of efficiency under all operating and road conditions. This Type M cleaner is also unusual in that it may be inserted between the hot air stove and the carbureter, if desired, and that it may be placed at any angle without affecting its operating efficiency.

As shown in Fig. 1, this cleaner is of the centrifugal separating type and consists of four pieces, namely, the housing or shell, standpipe, baffle and vane ring. The cleaner is very light and does not require additional support when secured to the carbureter air intake. The three parts first mentioned are made of drawn steel, while the last-mentioned part is a die casting. In assembling the device, first the baffle plate is pressed onto the standpipe; then this assembly is sweated into the housing, and finally the vane ring is pressed and staked into the upper end of the housing.

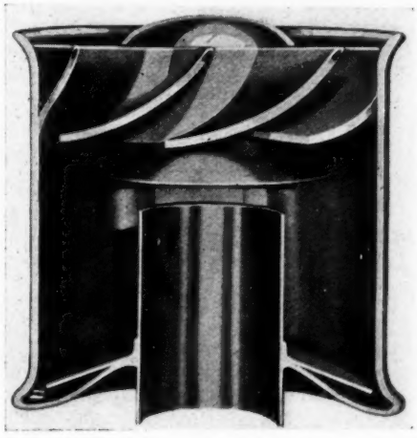


Fig. 1—Cross section showing construction and principle of Handy air cleaner

In operation, air enters at the upper end through the annulus formed by the outer shell or housing and the cap or bell which masks the upper end of the standpipe. Within this annulus are eight vanes which are so shaped that the angle of incidence at the outside is about 45 deg., while the discharge angle at the inner lip is about 10 deg. from the horizontal. These vanes are shaped to produce the maximum rotating effect with the minimum resistance to air flow. As a result of the rotary motion imparted to the incoming air stream, the heavier particles are thrown outward, away from the lip of the bell or cap which masks the standpipe orifice. At this lip the clean air changes its direction sharply, flowing toward the center and passing on into the carbureter.

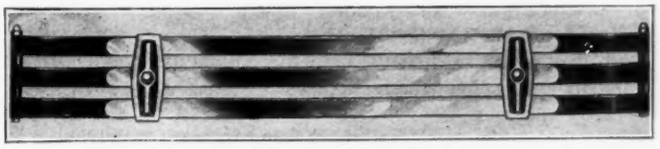
Dirt particles which have been carried to the outside continue to swirl in a helical path close to the wall of the housing. The baffle plate leaves a narrow opening all around the inner surface of the housing, and in conjunction with the enlarged lower end of the outer member it forms a trap from which no dirt can get back to the standpipe orifice. Dust and dirt are ejected through the small openings which may be seen at the lower left-hand corner in the illustration. This opening is provided with a lip which extends inward and picks up the heavy particles as they are carried around by the swirl.

That dust and other particles that have once entered the lower part of the separating chamber cannot get back to the mouth of the standpipe is demonstrated by means of transparent models in which small pieces of paper are placed. As soon as the engine is started, these pieces begin to swirl. When the throttle is suddenly closed, the pieces show a slight tendency to float upward, but they move upward only a very slight distance and are held close to the wall of the housing.

This cleaner is very compact, the over-all diameter of the various sizes being about two and a half times the actual diameter of the carbureter outlet and the length somewhat less than three times the same figure. While vertical location is recommended, the cleaner can be mounted at any angle down to horizontal. On many horizontal carbureters the cleaner can be mounted vertically directly in the air intake. On the usual vertical carbureter a short elbow is required for vertical mounting.

Where it is desired to locate the cleaner between the heater and the carbureter, an adapter or hood connected with the heater line is placed over the intake end of the cleaner.

Federal Triple Spring Bar Bumper



A NEW addition to the bumper line made by the Federal Pressed Steel Co. of Milwaukee, known as the Federal-3, has three 2-in. oil-tempered spring bars anchored at both ends (similar to the Federal Broadway double spring bar models), with heavy cast clamps. It has the bars finished in either nickel or black and is also made with black bars with nickel plated alloy sheaths guaranteed not to rust.

Car Makers Abroad Seek to Regain Foreign Markets

Percy Owen presents facts and figures which indicate exactly where and how foreign automobile manufacturers are increasing production and sales.

By Percy Owen
Chief, Automotive Division, Bureau of Foreign and Domestic Commerce

OPERATING 90 per cent of the motor vehicles of the world, and accounting for 80 per cent of the world's annual production, the United States and Canada lead all other nations in motor transport development. At present they also dominate export trade for the same reason—sheer weight of numbers. The position, therefore, of the American automotive industry in foreign markets would appear unshakable were it not for certain less promising factors which are just beginning to be apparent.

At the outset, the question may be stated thus:

In quantity of production and exports, America stands alone. Last year American manufacturers built more than 4,000,000 cars and trucks, shipped 221,000 of them from the United States and Canada, and assembled 106,000 more abroad.

The rest of the world built 500,000 units at the most, and exported perhaps 70,000. But—and this is the crux of the matter—foreign producers during the past year and a half have actually accomplished quantity production and are also beginning to use the progressive-assembly plan hitherto peculiar to America, and their export trade has increased thereby in much larger proportions than has our own.

Stands Supreme in Transportation

Throughout the world, the employment of motor transport is an increasingly important phase of modern life. There is hardly a country where the automobile is not known; even the fastnesses of the Himalayas and the limitations of highways in South America no longer bar its passage. Every country in some measure has shared in that remarkable development of transportation in which America still stands supreme.

All manufacturing nations have increased their production of vehicles; all have increased their exports, also. But the foreign manufacturing nations, taking many a leaf from our book, have begun to employ our mass production methods and, in the lack of home markets, are diverting their increased output into competition with American-made cars.

Here are the facts in the case. In 1920 the United States held 73 per cent of the automotive export trade of the world, and Canada, 9.8 per cent. The other producing countries divided less than 18 per cent. In the first six months of 1924, the United States held about 54 per cent of the world trade and Canada 17 per cent, while the other countries increased their share to almost 30 per cent. The significant feature of this development is the quickness with which it has occurred, for the change in the comparative standing of most of the foreign producers has taken place since 1922.

The position of American automobile manufacturers with reference to the world markets differs widely today from conditions in 1920. Four years ago production in European countries had been restricted to a minimum, as the result of the intensive efforts in all lines of industry to concentrate upon production of war materials. Thus, America was the only nation in a position to supply the demand of other nations for automobiles and automotive equipment, and consequently, in 1920, had established a record for foreign trade in these lines.

Europe Producing on Large Scale

Today, the European countries, having recovered from the devastating effects of the war, have resumed production on a large scale. Change of equipment has taken place, and methods for mass production have been adopted. Naturally, these countries have again entered into the export fields, and are beginning to make themselves seriously felt in foreign competition.

The question now arises as to whether the United States can hold the large share of foreign business which was available in 1920, in the face of increasing and more active competition from the European countries.

Nine countries make up the principal automobile production areas of the world. They are the United States, Canada, France, Italy, United Kingdom, Germany, Belgium, Netherlands and Austria. The latest compilations of figures, those covering the first six months of 1924, show facts worthy of close study. Every producing area has increased its share in export trade, as compared with 1923, with the exception of Canada, Italy, Germany and Austria; but of these four exceptions, only Canada and Germany have shown a material decrease.

Actual figures, instead of percentages, point the moral even more clearly. In round numbers, the United States in the first half of 1924 shipped 94,000 cars, trucks, and chassis, as against 151,000 in the whole of 1923; Canada shipped 30,000, against 69,000 in 1923.

English and European Exports

But France exported 24,000 in these six months, as contrasted with 30,000 in the entire year 1923; and the United Kingdom advanced even further, shipping 6,000 in six months the past year, as against 5,000 in 12 months in 1923. Belgium also exported almost exactly the same number in the first half of 1924 as in all of the preceding year, and the Netherlands extended its shipments in these dissimilar periods by 250 per cent—many of these increases, be it said, however, were the products of the foreign assembly plants of an American company.

A comparative table giving the combined exports of passenger cars, trucks and chassis (in some of the countries treated the figures for these various classes can not be separated) will prove this point.

Growth of the world's trade in motor vehicles
(Cars, trucks, and chassis combined)

Country exporting	1920		1921		1922		1923		1924 (first six months)	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
United States	171,644	73.0	38,430	53.8	78,234	48.5	151,894	52.9	94,863	53.9
Canada	23,012	9.8	11,176	15.4	37,958	23.5	69,920	24.3	30,898	17.6
France	(1)	.....	(1)	.....	17,870	11.0	30,924	10.8	24,531	13.9
Italy	11,320	4.8	10,415	14.9	11,372	7.1	12,773	4.4	8,244	4.7
United Kingdom	8,433	3.5	3,762	5.0	4,280	2.7	5.474	1.9	6,126	3.5
Germany	17,486	7.5	5,778	7.8	9,163	5.7	5.754	2.0	1.218	.7
Belgium	1,879	.8	1,225	1.0	2,084	1.3	8,281	2.9	8,300	4.7
Netherlands	361	.2	305	.4	263	.2	288	.1	708	.4
Austria	977	.4	1,303	1.7	(1)	.....	2,053	.7	1,082	.6
Total	235,112	100.0	72,394	100.0	161,224	100.0	287,361	100.0	175,973	100.0

[1]Statistics by number not available.

Take the 10 leading markets of the principal foreign producing countries, and the inroads being made into markets that might otherwise be dominated by the American automobile become increasingly apparent. France's best markets are Belgium-Luxemburg, United Kingdom, Germany, Spain, etc., chiefly European nations. In numbers, the French shipments are increasing month by month.

Italy's Chief Markets

Italy's chief markets include Switzerland, where American producers have hard sledding, and the United Kingdom; it is also steadily improving its position in Australia, which for years has been the chief passenger-car buyer of the United States. The leading purchasers of the United Kingdom are Australia and the Irish Free State.

A different line-up in the main is presented by the chief markets for automotive vehicles made in the United States. In passenger cars, the Latin American markets contribute to our standing materially, although Australia is by far the principal purchaser; British South Africa, Japan and the United Kingdom also stand high.

In trucks, Japan, Sweden and Australia lead; but Spain, the only other European country figuring prominently in the list, drops to a comparatively low figure. As for Canadian shipments, British colonial areas take the bulk of them.

To sum up, the figures show that France is selling more passenger cars in Belgium, the United Kingdom, Germany, Switzerland and other countries than is the United States. Italy ships twice as many cars to Switzerland as does the United States, and many more to such countries as Austria, France and Egypt. The United Kingdom is directing its attention to Australia and its Colonial possessions, selling its vehicles there in increasing numbers. The figures of this trade distribution are given at the bottom of the preceding column.

Automobile exports of France, Italy, and the United Kingdom; comparison for 10 *leading countries of destination, first six months,* 1924.

(By number)

Country to which exported	France		Italy	United Kingdom
	Passenger cars and chassis	Trucks and chassis	Passenger cars, trucks, and chassis[1]	Passenger cars, trucks, and chassis
Belgium-Luxemburg	4,236	272	639	....
United Kingdom	3,542	241	1,086	....
Germany	3,540	236	407	140
Spain	2,658	285	738	....
Algeria	1,889	169	....	....
Switzerland	1,464	381	1,157	....
Saare region	1,884	256	....	....
French Indo-China	595	25	....	....
Netherlands	385	(2)	....	....
Morocco	290	37	....	....
Australia	....	....	1,095	1,681
Austria	....	....	312	....
France	....	....	244	....
Egypt	....	....	234	....
Argentina	....	....	218	....
Irish Free State	....	....	....	1,515
New Zealand	....	....	....	418
India	....	....	....	596
British South Africa	....	....	....	311
Japan	....	....	....	186
Straits Settlements	....	....	....	187
Ceylon	....	....	....	98
China	....	....	....	141

[1]Includes motor tractors, fire-fighting apparatus, street-cleaning equipment, etc.
[2]Included in classification "All others," and therefore not obtainable as separate data.

Leading export markets of American producers, first six months of 1924

(Cars, trucks, and chassis combined; by number)

Country to which exported	United States	Canada	Country to which exported	United States	Canada
Australia	21,932	11,360	Spain	3,190	.....
Argentina	6,122	654	Brazil	2,624	.....
Canada	5,909	.....	New Zealand	.....	5,205
British South Africa	4,509	1,760	British India	.....	2,949
Cuba	4,484	.....	Straits Settlements	.....	612
Mexico	4,179	.....	Dutch East Indies	.....	602
Japan	6,531	390	British East Africa	.....	430
United Kingdom	3,221	4,299			

When the balance of automotive trade is considered, it is found that only the United Kingdom and the Netherlands the past years suffered from an unfavorable condition; both of these imported vehicles during the first six months of 1924 at a higher rate than in 1923. On the other hand, every one of the other six countries for which figures are available has increased its exports, and has materially bettered its trade balance thereby.

The following table shows the total amount of favorable or unfavorable automobile trade balance in the chief producing countries:

Balance of trade in cars, trucks, and chassis

(Favorable (+) or unfavorable (−) difference between exports and imports)

Country[1]	1923 (twelve months)	1924 (first six months)	Country[1]	1923 (twelve months)	1924 (first six months)
United States	+$151,041	+$94,549	United Kingdom	−$24,352	−$13,167
Canada	+9,112	+26,083	Belgium	−4,931	+4,211
France	+22,439	+17,465	Netherlands	−9,968	−7,499
Italy	+11,867	+7,591	Austria	+1,374	+712

[1]Figures for Germany included with 'Vehicles' in general, and hence not comparable.

Use of Cobalt

ACCORDING to M. L. Guillet, who read a paper on the subject before the French Society of Civil Engineers, the addition of cobalt to steel and other metals in no way improves their mechanical qualities, but rather the reverse. On the other hand, cobalt magnet steels which contain from 10 per cent to 40 per cent of the metal, with a little tungsten or chromium, or both, are three times as good as the best ordinary magnet steels. It is claimed that an addition of 3 per cent to 5 per cent of cobalt to high-speed tool steels is an advantage, but the claim is not universally accepted. Cobalt plating is much superior to nickel plating. The baths can be more concentrated, and heavier currents employed, so that good coatings can be obtained in a few minutes.

Here and There in Foreign Markets

By special arrangement with the Automotive Division, Bureau of Foreign and Domestic Commerce

African Catalog Restrictions

A RECENT ruling of the customs department of the Union of South Africa, Trade Commissioner P. J. Stevenson at Johannesburg, advises the U. S. Bureau of Foreign and Domestic Commerce, extends the provisions under which automobile and other catalogs and price lists may be sent into the Union free of duty.

Under the new ruling "catalogs and price lists of foreign firms addressed to importers, merchants, or manufacturers, or public libraries or similar institution," for their own use, will be admitted free of duty, in reasonable quantities, under item 157 of the tariff schedule.

Heretofore South African customs authorities differentiated between dutiable and nondutiable catalogs and price lists simply by quantity. Importers and the other classes specified in the tariff law as entitled to free entry were allowed at one time only one catalog or price list free of duty. If more than one was received, duty was collected either by value or weight.

Demurrage Charges in India

A REPRESENTATIVE of an American automobile company, who has been in India for the purpose of appointing agencies, recently had four of his cars shipped to Bombay. These cars remained in storage in the Port of Bombay for about two and one-half weeks, and he received an invoice for approximately $1,000 to cover demurrage. It appears to be the policy of the Bombay Port authorities to purposely levy heavy demurrage charges, and it would be well for the American automobile manufacturers to note this fact, in order that they may avoid this heavy expense whenever possible.

German Partial Payment Plan

DUE to the stringency in the money market local agents are compelled to sell cars on the instalment plan and on short termed credits, usually 30 to 60 days. The local press reports that a new credit system for purchases of automobiles has been established by the Kraftfahrzeug Versicherung Vermittlung A. G. (Automobile Insurance Agency), with headquarters in Berlin. This company is also to act as agent for the German automobile dealers' union.

Under this plan the buyer must pay approximately one-fourth of the purchase price and give a three months' note for the balance. The fulfillment of the obligations of payment resulting from these transactions are guaranteed to the seller, presumably by the Kraftfahrzeug Versicherung Vermittlung A. G. At the time of purchase the buyer is also required to take out a uniform insurance policy against theft, liability, accident, fire, damage and risk of depreciation, through the Kraftfahrzeug Versicherung Vermittlung A. G.

A further insurance against depreciation is given by the "Auto Lebens Versicherung, Abteilung Kraftfahrzeug (Automobile Life Insurance Company, a subsidiary of the automobile department of the Kraftfahrzeug Versicherung Vermittlung A. G.). This insurance is usually for a period of five years and at the end of this period with the insurance, in addition to the remaining value of the old car, a new automobile may be purchased. It is expected by this plan to stimulate the automobile market and with more liberal terms of credit offer greater competition to the cheaper foreign cars.

Cars Need Replacing

THERE are approximately 2000 motor vehicles in Nairobi, Kenya Colony, Africa, that have been in use for more than three years, and it is believed that these machines will be replaced during the next two years, providing the prices obtained for coffee, sisal and maize remain steady and thus continue the prosperity that is beginning to be felt in the colony.

The Egyptian Situation

AS a result of the boycotting of British goods, it is reported that a local British firm acting as agents for a well-known American automobile has lost orders from Egyptians in the villages who were formerly its customers, and these orders are now being given to an Italian competitor.

Panama to Tax Gasoline

THE National Assembly of Panama passed a bill to tax gasoline 5 cents per gallon on all retail sales, the revenue to be applied to the maintenance of roads in the Republic. It is expected that the President will approve it.

How One President Visualizes the Capacities of the Dealer of the Future

"He must be willing to handle the amount of business that capital and safe credit will allow. He must have patience and courtesy always. Every department must return a profit."

By A. B. C. Hardy*

THE dealer of the future, to be successful, must have sufficient capital to handle his business, or to put it another way—he must be willing to handle the amount of business his capital and safe credit allow.

He must have plain simple sensible accounting records —so as to know where he stands up to the minute; and a good collection system with it.

He must know good business methods and must apply them to every transaction.

He absolutely must know which departments of his business make profit and how much, and which lose and how much, so he can stop his losses, because he must make every department sustain itself and pay him a net profit.

He must have the confidence of his fellow citizens, and of his bankers, and must have a reputation for honesty and square dealing.

He must have the respect of his employees, and ability to organize, direct and instruct them and to keep on doing it.

He must have vision and yet care for details.

He must have initiative and he must be resourceful—so that if one method fails he can apply another.

He must be an enthusiastic worker, and confident, for both will permeate a whole organization.

He must have patience and courtesy, all the time.

Do these basic requirements look hard? Do they sound to some of you like copy book—like old stuff? They are old—as old as good business—and absolutely essential for success in any competitive business. And future automobile business will be one of the most intensive.

On top of these fundamentals comes the car he elects to handle. This dealer of the future must have accurate and full knowledge of his car and he must understand the merchandising of that car so well that he can not only present it well himself—but so that he can instruct each of his salesmen and each member of his organization on it, for from the sweeper and the car washer right up through to the boss—every member including the bookkeeper is helping or hindering sales.

And even if he is getting by now—no dealer of the future will get a city block—unless he absolutely believes in his car. He must have faith in its value and price—quality considered—and in the company which makes that car, and in its stability and fairness and in its sales organization and sales policies.

There must be more confidence—mutual confidence—than ever in the past history of the industry. I know makers are honestly trying to do their full share to deserve confidence. Remember the car makers know the only real contact with the car buyer and owner is the one member or say the last member of the dealer's organization he meets.

Above all things the dealer who wants to keep on succeeding will never get over-confident, believe that he knows it all—nor allow his organization to get set that way. We have all got to keep open minded, to grow in this intensive future.

Nobody at the factory is allowed to get too set or too self-satisfied. We constantly send for specialists to show us new things and new methods from heat treating to sales. We scan the trade journals carefully and keep our engineers and research men feeling their way out into the future. We've all got to keep alive and abreast of the best in this fast moving industry. And methods of selling, repairing and advertising will change and improve in like manner.

After only food, clothing, shelter, heat and light —transportation which is your industry—is the most important and necessary in the world. It is sixth on the list of necessities of life.

I can't imagine the dealer of the future farming out his service and repair work, can you? But some dealers still do it.

But the automobile dealer of the future will be a merchant and gradually a more commanding one—and by the same token one of the most useful and necessary ones in his community.

In the first place, he'll be selling—dependable transportation units. He'll have the courage to recognize what the word service really means and then put it to its proper use, for whatever he sells or supplies gives service to his community. And he'll call his shop which will be in the same building, clean and well lighted for economy's sake, his "Repair Shop" for that's what it is—and he'll charge for repairs flat rate fair prices—for economical work.

He'll sell repair parts right at a quick service counter just off his show room—say at a middle point between his office and his repair shop to give service to both public and shop. His repair parts stock room will be clean and in good order—stock moderate but fairly complete and kept up by simple perpetual inventory records—to really give service and to make profit.

He will also quickly and courteously sell *for cash* and at

WHAT constitutes a good dealer? What abilities ought he to possess?

There has been a lot of talk and discussion on this subject.

Here is a concrete definition by the president of one of the larger companies.

**Extracts from an address given before the Michigan Automotive Trade Association Meeting in Kalamazoo.*

a liberal portion of his discount, repair parts for his make of car to any reputable competing car dealer who will reciprocate on the same basis—so that the competing car dealer may economically repair a trade car of his make. And he'll sell *for cash* to any reputable independent garage man repair parts at a liberal portion of his own discount—so the car owner may get moderate repair cost.

For these two things will gradually increase the good will toward himself and will increase his own car business. For every car of his make—in his whole district new or old reflects on and affects the business of the man or concern which handles that car. Don't forget this—it's always true.

About used cars—they are no menace—they will increasingly be a part of future retail business. And the dealer of the future must find the way to make his used car department profitable. A used car will always be worth more to its owner as relief transportation and to supplement his new car, than to anybody else.

No one of the many used car plans has yet succeeded—and I believe the dealer of the future will work out best and most profitably his own plan—as the problem will always be local. Remember the market for transportation—for passenger cars both new and old is one market and it's your market. It will be easier to handle when the larger flocks of orphan cars now running have been ground through the mill.

In closing—an enormous market will be ahead of us—and the dealer of the future who qualifies will have a substantial business in the most interesting industry I have ever known of. If he qualifies—his standing as a merchant of the all needed transportation will continue to advance. I'm for him, and for you; and as long as I am in the industry I will go my limit to make the automobile business a cleaner and a fairer and a safer business and more profitable to the dealer of the future; and I believe this is the earnest ambition of every real executive in the manufacturing end.

What the Public Has Come to Expect from American Cars

By Lou E. Holland

President, Associated Advertising Clubs of the World

TO my mind there is nothing finer—and I think you will agree with me that there has been no element in the development of the motor car more conducive to sales—than the implicit confidence of the public in the American motor car. Ford, Buick, Studebaker, Cadillac, Packard, Pierce-Arrow, whatever the make of car the buyer has learned to expect remarkable results from it.

And it is the manufacturer's and the dealer's proudest boast that, mechanically, the buyer's expectations are realized. He does get results.

It is the function of advertising to awaken this expectation. That advertising of automotive products has been extremely successful is, I think, illustrated by the fact that in Europe, where automobiles are not advertised, they are still the luxury of the wealthy few.

In America, on the other hand, advertising has made the automobile the necessity of the working man. It has brought the initial cost and the cost of upkeep within his reach.

Advertising also has simplified the operation of automobiles through the standardization of parts. Any service station in any part of America can supply the needed piston rings, tires or other parts for almost any make and size of car. Every man and woman may easily and cheaply be his own chauffeur—thanks to advertising.

And advertising may be said to be effective precisely in proportion as the expectations of the buyer are realized. You will realize, then, how important it is that advertising in all respects be truthful. Untruthful advertising is worse than no advertising at all. It destroys the confidence which advertising is intended primarily to create.

It is manifest, then, what a very vital part the Truth-in-Advertising movement has played in developing the automotive business. Without advertising and without truthful advertising the production of automobiles could not have risen to a tenth its present volume of 4,000,000 a year. The investment in the industry—if it had survived at all—would have been far below $2,000,000,000.

The National Vigilance Committee and forty-one affiliated Better Business Bureaus cooperate with the automotive manufacturer and dealer to protect the confidence of the public in automobiles. Fraudulent advertising cases have decreased more than 50 per cent in the automobile manufacturing field during the last three or four years. Appreciable progress has been made in the tire and accessory fields, too, though the decrease has been less.

The greatest difficulty the committee has had recently is in the field of disparaging—although not necessarily deceptive—advertising. "More of Our Cars Sold Than Any Other Make" at this price or of this horsepower was a prominent trend.

The development of the balloon tire caused the committee to intervene in a comparative advertising war by six prominent tire companies. Each of these companies doubtless had a part in the invention, initial production and marketing of this popular type of tire. But the advertisements were so worded that each of these seemed to be *solely* responsible for it. The committee took up the matter with all of them and they have agreed, for the sake of the industry as a whole, to stop bickering.

A form of deceptive automotive accessory advertising which was probably the most extensive of all is that of so-called "cure-alls." Certain brands of gasoline strainers, vaporizers, or spark plugs, for example, would be advertised in such a manner as to indicate that, whatever was the matter with an automobile, this strainer, vaporizer, or spark plug would fix it.

All automotive industries, the motor car manufacturing industry itself and the accessory and tire industries are in substance one industry. It is this point I wish especially to emphasize. If the confidence of the public is impaired in tires or tubes, spark plugs or carbureters, it is impaired in automobiles.

As the legitimate motor car, accessory and tire companies, realizing that they are all working toward a mutual end, cooperate among themselves and with the National Vigilance Committee, this cooperation will be expressed in increased confidence and increased sales.

Strength of Gear Teeth Decreased as a Result of Inaccurate Spacing

Details of the equipment used for making comparisons. Curves plotted and the conclusions to be drawn from the results.

TESTS to determine the effect of inaccuracy of spacing of gear teeth on the strength of the gears have been conducted at Stanford University, Cal., by Lloyd J. Franklin and Charles H. Smith, and an account of these tests and the results arrived at are contained in a paper presented by them to the American Society of Mechanical Engineers in New York this month. This research regarding the strength of gear teeth is in a way a sequel to similar work conducted at Stanford University by Profs. Guido H. Marx and L. E. Cutter between 1911 and 1914.

The set-up for the tests was as follows: A 50-hp. induction motor drove through a silent chain to a short shaft supported in a substantial bearing and carrying the chain wheel on one side of the bearing and a steel pinion on the other. This gear pinion meshed with a steel gear wheel, the two forming a set of change gears. The driven gear was also mounted on a short shaft which at its other end carried one of the cast iron test gears, the other test gear being on a third short shaft which carried a brake drum at its other end. The brake was of the friction type, its arm being supported on a scale so that the pitch line pressure on the test gears could be readily determined.

All test runs were started at zero load, and the brake was gradually tightened until the gears ruptured. Increments of load of 5 lb. were used until the gears showed signs of labor, when the increment was reduced to 2 lb. and finally to 1 lb.

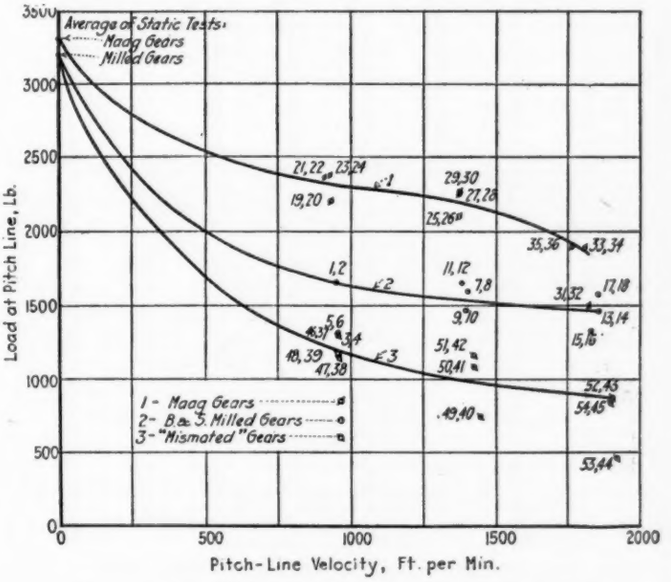
The gears tested were all 10 diametral pitch, 60 tooth, cast iron, 14½ deg. involute gears furnished by the Pratt & Whitney Co. They had a bore of 1 5/16 in., a face of 1 1/16 in. and a 5/16 in. key, the hubs being made specially long so there would be no danger of key failure. The gears tested included three classes with different degrees of accuracy of spacing. One class consisted of what are known as "standard Maag" gears, for which the spacing error ranged between 0.0005 and 0.001 in.; the second class consisted of gears cut with milling cutters in the ordinary way and had spacing errors of ±0.002 in. The third class consisted of milled gears in which the spacing errors were purposely made larger, up to ±0.006 in.

Curves were plotted for each class of gears showing the relation between the pitch line load that caused failure and the pitch line velocity. Each test gear, of course, furnished only a single point for these curves. At the conclusion of the tests test specimens were cut from all gears tested and their flexural strengths determined. The average of all the values found for the flexural strength was 56,320 lb. per sq. in. It was found that by correcting the result obtained from each gear so as to make allowance for the difference between its flexural strength and the average flexural strength of all gears, much smoother curves were obtained.

Curves showing the relation between the corrected pitch line load causing failure and the pitch line velocity are shown in the accompanying diagram. It will be noticed that the three curves are all of the same general character, and the results are said to check well with earlier tests.

Gears used in earlier tests were of ordinary cast iron with an average flexural strength of 40,909 lb. per sq. in., while the gears used in the recent tests were really of semi steel, with an average flexural strength of 56,320 lb. per sq. in. One point which the authors make no attempt to explain is that the Maag gears showed a somewhat higher static strength than the other two classes.

The following conclusions are drawn from the results:



Curves showing relation of pitch line velocity of breaking load reduced standard modulus of 56,300 *lb. per sq. in.*
(1) Maag gears, (2) milled gears, (3) mismated gears

These tests show that inaccuracy of spacing of gear teeth materially affects their carrying capacity, particularly at speeds of 1000 ft. per min. and upward. Broadly, it may be said that at such speeds gears whose inaccuracies of spacing do not exceed 0.001 in. will carry twice the load of those having inaccuracies of 0.006 in.; and that the strength of gears having inaccuracies of the order of 0.002 in. is just about half-way between the two. An error of 0.006 in. on this size of tooth was the extreme that the makers were willing to provide, and is much more than will ordinarily be found in first-class commercial cut gears.

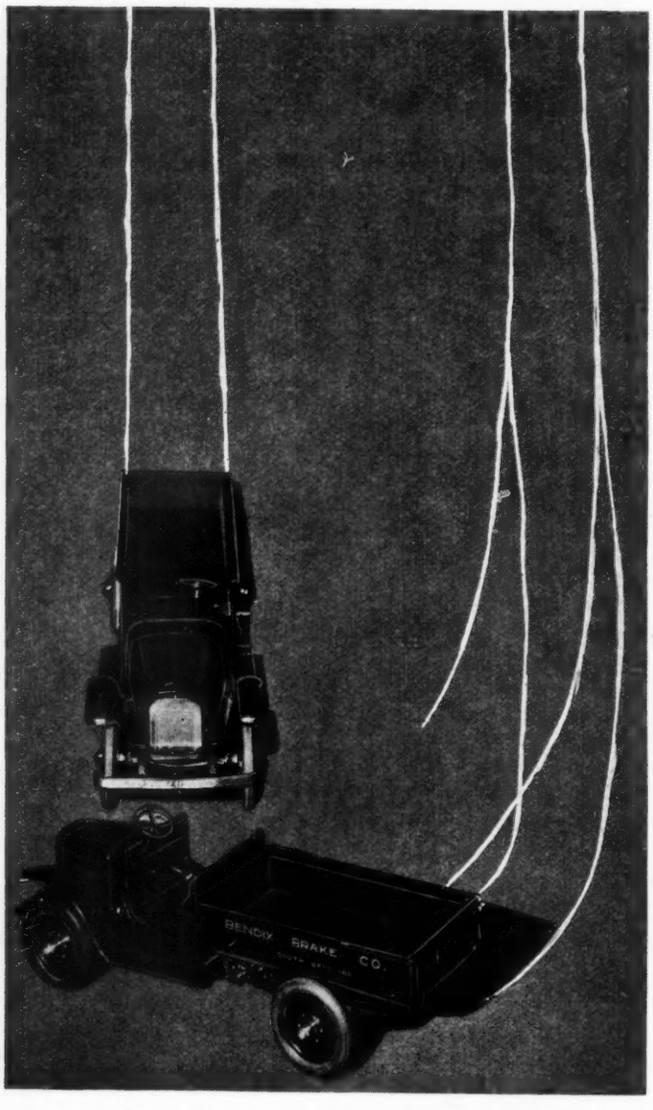
It is to be noted that although the strength ratio of the most accurately to the most inaccurately cut gears is two to one (at a speed of 2000 ft. per min.), this is by no means as great a difference as some writers had expected to be shown; and it is particularly to be noted that the falling off of strength does not follow the law Wilfred Lewis thought he had deduced from Lasche's discussion, and which led him to the obvious error that the allowable load becomes zero at speeds of 2600-2700 ft. per min.

Advantages of Four-Wheel Brakes Demonstrated

DURING the week of the New York show the Bendix Brake Corp. had an exhibit at the Biltmore at which demonstrations were given of the action of cars with different types of brakes when these are locked.

A running surface was provided by a sheet of linoleum of which a portion was inclined so that a model car would slide down it when given an impulse even though all four of its wheels were locked, while the other portion was lying on the floor and was therefore horizontal.

With only the rear wheels locked, representing a car with rear wheel brakes only, the car would skid badly and invariably run off the linoleum sheet at the side, as shown in the illustraton at the right. On the other hand, if only the front wheels were locked, representing the case of a car having front wheel brakes only, the car would run practically to the end of the sheet without swerving from a straight path. If all four wheels were locked, representing the case of a car with four wheel brakes, the model stopped almost immediately after reaching the horizontal portion of the sheet and did not deviate perceptibly from a straight course. This is shown in the left hand view.

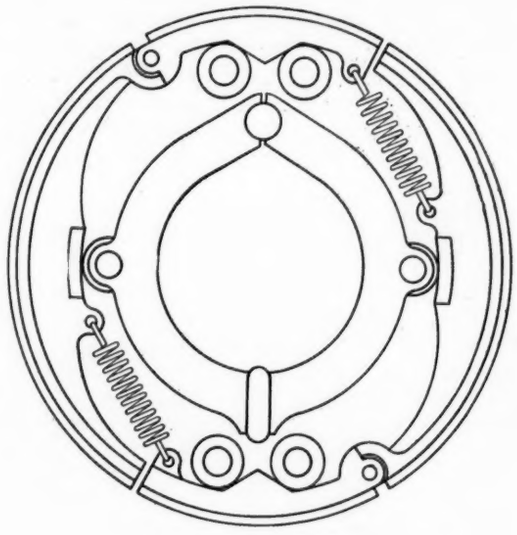


Apparatus for demonstrating the effect of brakes

With both wheels on one side locked and those on the opposite side free there was materially less skidding than with both rear wheels locked and the front wheels free.

The novelty of the demonstration aroused a great deal of comment and we show it here as an interesting merchandising idea.

Self Energizing Brake Shoe



Len braking systems

A NEW design of self-energizing brake shoes has been introduced in England and is known as the Len braking system. In its simplest form it is now being offered as a conversion set for Morris cars, to which it may be applied without structural alterations.

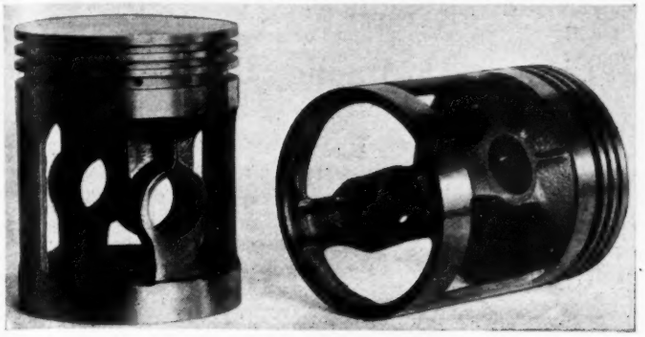
When the system is applied to new models it takes the form shown by the drawing herewith. This design is claimed to give up to 300 per cent increase over normal shoe pressure; each set consists of four cast shoes flexibly connected and floating so that they can expand radially. Two of the shoes are brought into contact with the revolving drum by a conventional cam acting through two short levers. Frictional contact between these shoes and the drum first causes the whole set to rotate slightly with the drum; the relative movement which then occurs between rollers and wedge-shaped internal projections on the two short shoes results in heavy contact being made between the smaller shoes and the drum.

This set also acts equally in both directions, secures equal radial pressure at all points and is said to be free from any tendency to jam. Apparently, however, the principal advantage of this more involved arrangement lies in the use of rollers, which reduce friction and so increase the self-energizing effect. The rollers would also appear to make brake application more precise.

The conversion set for Morris cars is handled in England by Woolwich Motor Services, Ltd., London, S. E. 18. That set is rather different in design from the one here illustrated, as it must fit the drum and the brake support of the existing car, and the designer therefore has less latitude.

Recent Developments in Brakes and Pistons

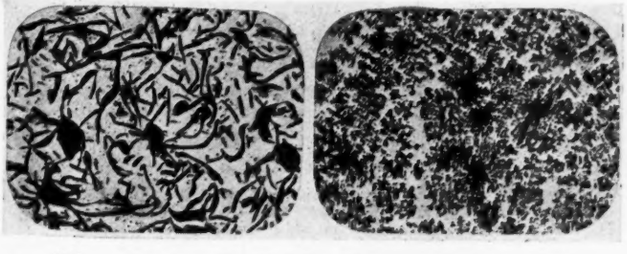
Skeleton Pistons Hupmobile Is Using



Skeleton type pistons of iron cast in metal molds

WE show herewith two views of the skeleton pistons which have been used on the Hupmobile as standard equipment for some months. These pistons weigh 18 oz. each, without rings and piston pin. The pistons are cast by the permanent mold process which has been developed by the Holley Carbureter Company and was described in our issue of March 27, 1924.

The photomicrographs reproduced herewith are said to be of samples of iron of the same melt, the only difference being that one was cast in a sand mold and the other in a metal mold. When the iron is poured in metal molds, while chilling is prevented by a special coating on the surface of the mold, the rate of cooling is more rapid than with sand molds, with the result that the carbon is thrown out of solution as a fine precipitate, thus giving the characteristic structure. If the iron were chilled it would be necessary to anneal it at the temperature which gives the iron a characteristic malleable structure. This latter does not offer as good a wearing surface as does cast iron.



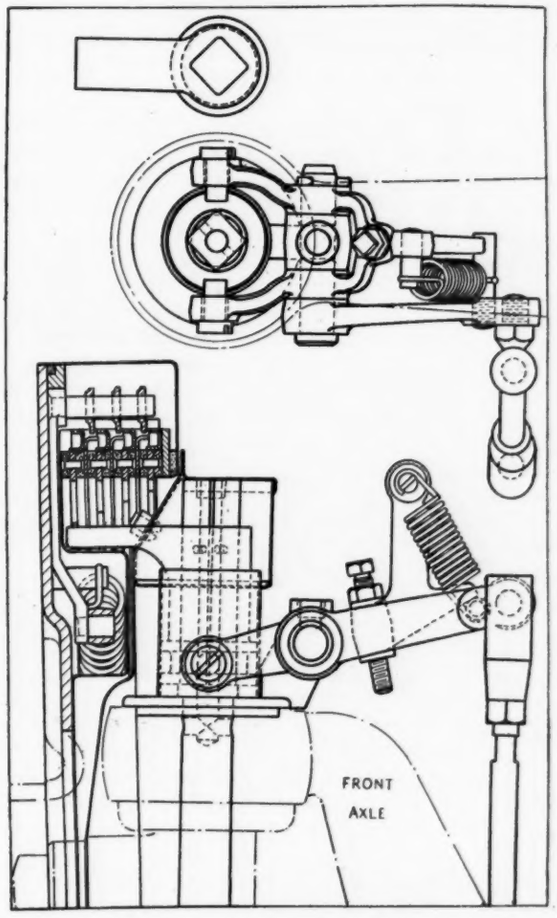
Micro-photographs of iron of the same melt cast in sand molds and metal molds, respectively. In the metal mold iron, graphite formations are seen near the middle of the sample. The photo shows the dendritic structure characterisitic of white iron, the graphite being very fine

Multiple Disk Type of Brake Invented

WALTER J. SPIRO of White Plains, N. Y., has invented (and obtained patents on) a multiple disk type of brake in which both sets of disks normally rotate with the wheel and one set can be stopped from rotation, one at a time, by means of a sliding key operated by means of the brake pedal through suitable mechanism. The two sets of disks are permanently held in contact by means of a number of coiled springs which press them together with a definite force. One set of the disks is provided with driving lugs on the outer circumference, which engage with driving pins projecting laterally from the brake supporting disk that fastens to the wheel. The other set of disks, each of which has asbestos fabric facings secured to it on opposite sides, are provided with radial driving lugs on the inner circumference. These lugs can be engaged by means of the sliding arm or key, which can be moved radially toward the disks by means of the brake pedal, sliding on a square-sectioned column mounted on the axle. The inwardly extending lugs of the "driven" disks are of unequal length, so that as the pedal is moved forward, one disk is picked up after another and the braking effect is in direct proportion to the number of disks engaged by the sliding bar.

Among the advantages claimed for this type of brake are ease of operation, unusually large wearing surface with consequent reduction in rate of wear and absence of need for adjustment and of brake drag. The design can be applied to front wheel and transmission brakes as well as to rear wheel brakes.

THE Westinghouse Electric & Mfg. Co., in cooperation with a number of steel foundries, has developed a method for the heat treatment of large steel castings for the purpose of refining the grain. Among the equipment, etc., developed in this connection are a container, a salt mixture and a quenching bath.



Sectional view of one-half of Spiro multiple disk brake as applied to front wheel

Sedan Bus Bodies, Shock Absorbers, Hydraulic-

A LINE of sedan type bodies which incorporate many features making for light weight, comfort, attractive appearance and durability are being manufactured by the Field Body Corp., Owosso, Mich. These bodies are made in 17, 21, and 25-passenger sizes and have an unusual frame construction in that no transverse bolsters or longitudinal sills are employed.

In order to provide a low floor and give the desired low appearance, the floor is laid directly on the chassis frame and the body frame is supported by outriggers which are bolted to frame channels and to the floor itself. Elimination of bolsters and sills is said to effect a saving in weight of about 50 lb. per passenger. Field sedan bodies are said to weigh an average of 125 lb. per passenger capacity.

It is claimed that this saving is not at the sacrifice of strength and durability, partly because the body pillars are secured to the run boards at their lower ends and again to the floor at the points where they pass through it. This is claimed to preclude loose or weaving joints.

Body frame is made from air-seasoned white ash and oak with all joints mortised, glued, ironed and bolted together. Pressed metal gussets, plates and braces are employed wherever added strength is required.

Another item which makes for light weight is the use of individual reed or twisted fiber seats. As compared to other forms of seats they are said to save about 550 lb. in a 20-passenger bus. These seats are made easily detachable. They are held in place by hooks which can be disengaged when the seat is tilted forward. Rear legs of the seats are adjustable for length so that any desired tilt can be had. Double cushions with Marshall springs are employed.

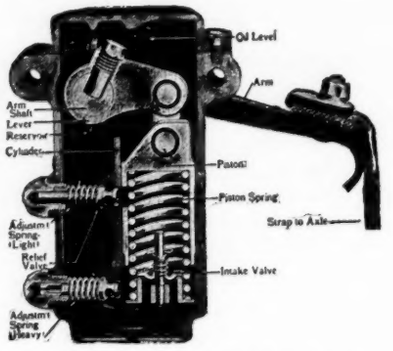
Exterior finish is in Duco and an option on interior trimming materials is given. Doors are hung on four hinges and have 3/16 in. plate glass windows with regulators. There are five doors on the right side and one on the left.

Equipment includes: exhaust heating system with Petree valves, six dome lights or side lights, one cowl and two roof ventilators, red and green exterior corner lights, luggage carrier, electric windshield cleaner and route sign.

Overall length is 192 in. on 17-pass. and 224 in. on 21 and 25-pass. bodies. Overall width is 76 in. on 17 and 21 pass. bodies and 90 in. on 25-pass. bodies. Height from floor to ceiling is 54 in. and distance from seat back to seat back is 32 or 33 in. as desired.

Lovejoy Hydraulic Shock Absorber

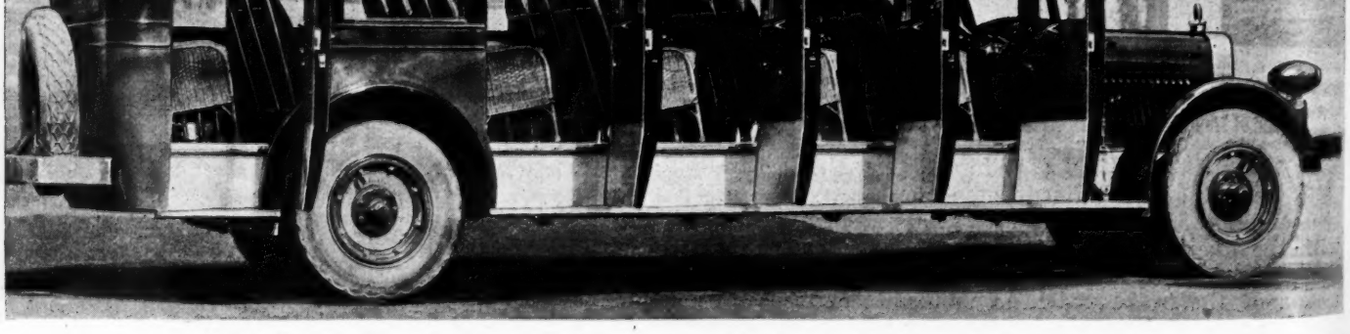
A CHANGE recently made in the design of the Lovejoy hydraulic shock absorber gives it two operating ranges, one corresponding to operation on smooth roads, where there is comparatively little spring action, and the other to operation on rough roads. As shown by the sectional view herewith, the shock absorber comprises an



Sectional view of Duplex Lovejoy hydraulic shock absorber

oil reservoir within which there is a cylinder containing a piston linked to a crank which is connected with an arm outside the housing. The housing is secured to the vehicle frame and the arm outside it connects to the axle by means of a strap.

When the chassis spring is compressed, a coiled spring inside the hollow piston forces the latter up inside the cylinder, as a result of which oil from the reservoir is drawn into the cylinder through a valve at the bottom thereof. During the rebound the piston is forced down in the cylinder, the oil inlet valve at the bottom closes, and the oil is forced out through ports in the piston and cylinder wall, past the upper of the two spring-loaded valves. The spring on this valve is quite light, hence the



Field sedan type bus body, showing arrangement of individual detachable reed seats

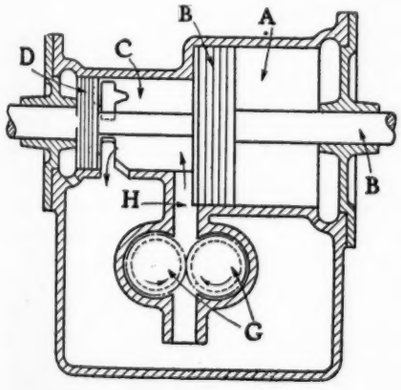
Servo-Brakes and Double Action Magneto Evolved

resistance to the motion of the piston is light as long as the port in the piston registers with the port in the cylinder wall. If the rebound covers more than this range, the lower of the two valves, which is more highly loaded, is opened by the oil pressure, and the damping action then is much greater. It is stated by the manufacturer that the upper valve alone controls the action of the shock absorber from 75 to 90 per cent of the time.

Hydraulic Servo Brake Patented in England

ONE of the objections to the conventional hydraulic servo mechanism is that the pressure of application is not proportional to the position of or the pressure exerted upon the control device (pedal). This difficulty has been overcome in a new hydraulic servo device recently patented by the firm of D. Napier & Son, Ltd., of London. A piston valve D is used to control the flow of liquid from the brake cylinder A, into which it is forced by the gear pump G.

The control valve is so arranged that the pressure of the fluid in the brake cylinder constantly tends to open it. In consequence, the pressure exerted by the fluid



Napier hydraulic servo mechanism applying the brake in direct proportion to the push on the pedal

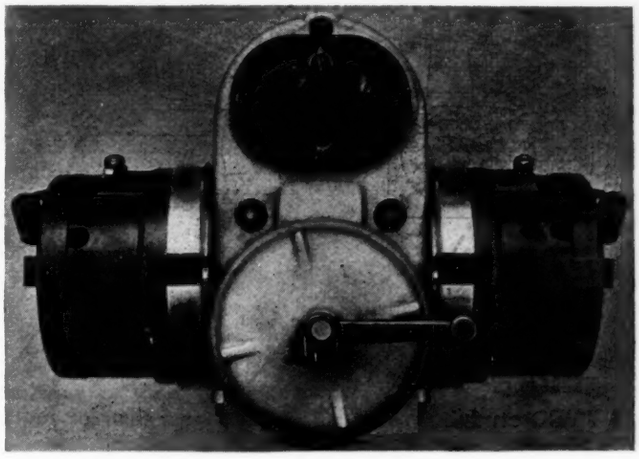
upon the brake piston is always proportional to the force impressed upon the piston valve. By making the valve piston and the brake piston of different diameters, it is possible to obtain any desired proportion between the two forces.

In the arrangement shown in the illustration there are two co-axial cylinders which are open to each other at their adjacent ends. The piston B, located in one of these cylinders, is connected to the brake linkage, while the piston D in the smaller cylinder is the control valve and connects to the brake pedal.

Double Magneto Developed for Aircraft

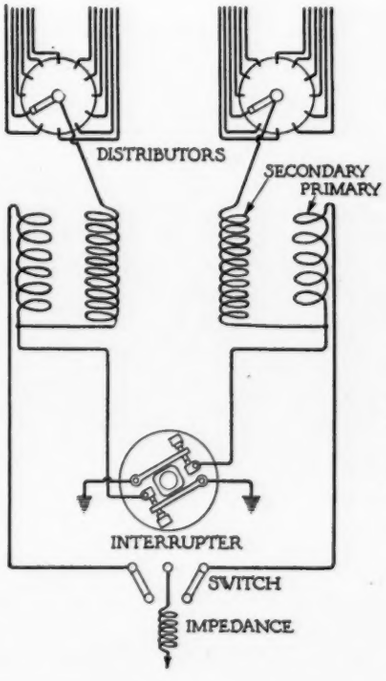
A NOTEWORTHY advance in aircraft engine ignition seems to have been achieved in the new magneto which the Splitdorf Electrical Co. of Newark, N. J., has developed for use on the new Packard aircraft engines illustrated in our issue of Jan. 29. This is known as the Splitdorf Model PA double magneto. Although the machine has a single frame and magnetic circuit, it possesses two primary and secondary windings, two interruptors, two condensers and two distributers. In fact, all the current carrying parts are duplicated. As the current carrying parts are the vulnerable parts of any magneto, practically the same degree of reliability should be assured by one of these magnetos as by the provision of two separate magnetos, with a considerable saving in weight, which is of particular importance in aircraft work. The double magneto weighs 18 lb.

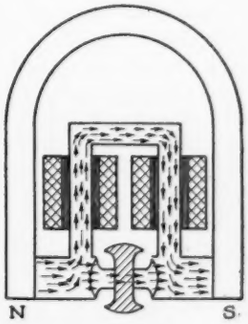
This magneto generates four double sparks for each revolution of the rotor and can be used on airplane engines of 6, 8, 9, 10, 12 and 18 cylinders. Aside from the



Splitdorf Model PA double magneto

use of two entirely separate electrical primary and secondary circuits, the magneto is of the same general design as the Splitdorf Models S and SS polar inductor magnetos which have been successfully used for aircraft engines for a number of years.

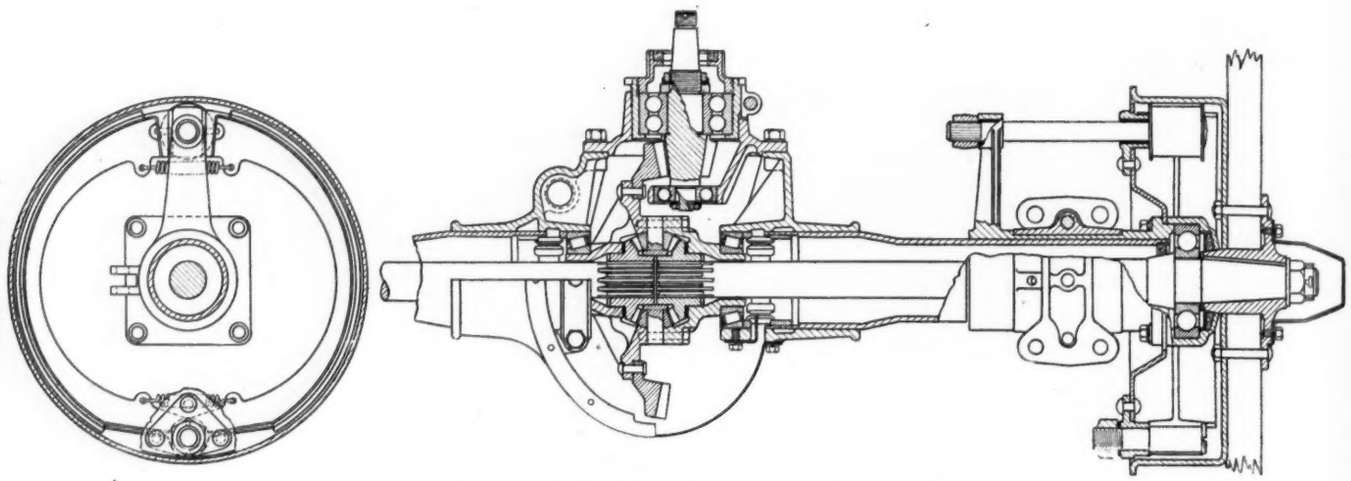




Above — Magnetic circuit of Splitdorf double magneto. (Left) Circuit diagram of Splitdorf double magneto

New Flint Bevel Gear Bus Axle Has Straddle-Mounted Driving Pinion

Has axle housing of the built up type which permits of varying the tread without going to the expense of change in manufacturing equipment. Under-truss used.



Sectional views of Flint bevel gear-driven bus axle

AFTER studying the problem of rear axles for motor buses from all angles, the Flint Motor Axle Co., Flint, Mich., came to the conclusion that a bevel gear type offered the best solution. Development work along this line has been carried on by the company for several months. This included the construction of sample axles that were put through laboratory tests and then fitted under buses and placed in actual service, in the hands of regular drivers who were not informed that they had experimental axles on their bus.

One of the laboratory tests consisted in mounting the axle in a testing machine and connecting it to a 50-hp. electric motor driving through a gearbox giving a total reduction of 42 to 1. This machine was equipped with two contracting brakes, and provision was made for varying the load on the axle. Twelve indicators were mounted at important points, to show the deflections of the axle at these points under various loads.

As a result of these tests it was decided to redesign the axle, changing the design and the mounting of the differential and making other changes so as to reduce the deflections caused by heavy torque loads. Two gear ratios were finally decided upon, viz., 5.3 to 1 and 6.3 to 1, the reductions being obtained by means of spiral bevel gears of nickel steel with case-hardened teeth of 1¾ in. face width. The driving pinion is made integral with the shaft and is mounted between two ball bearings, with provisions for adjustment. Sixteen rivets are used for fastening the ring gear to the differential housing. The differential has side gears and pinions of nickel steel and is mounted in taper roller bearings. An increase in the size of these bearings was found to be necessary to minimize the deflections. Adjustment of the bevel gears can be effected through an opening in the center housing, provisions being made for positively locking the adjustment.

The axle shafts are made of chrome nickel steel and heat treated, and they are cut with ten splines at the ends for connection to the differential. The shafts are 1¾ in. in diameter and are mounted in a single row ball bearing at the outer end. The wheel hubs are secured to the axle shafts with a taper and keyed joint with castellated nut and washer.

To limit the deflection under load, an under-running truss is used, and is secured to the axle housing at its ends in such a manner as to permit of the use of either overslung or underslung springs. The axle tubes are of high carbon steel, of 4¾ in. diameter at the inner end, being swaged down to 3 15/16 in. diameter at the spring seats. These tubes are forced into the center housing under pressure and are then riveted in place. This construction is claimed to give a very rigid structure, and it has the additional advantage from the manufacturer's standpoint that it makes it possible to change the width of tread without the necessity of going to great expense.

The regular brake equipment supplied consists of high-carbon, heat-treated steel drums of 17½ in. inside diameter, having internal cam-operated shoes of 4 in. face. If desired, internal and external brakes can be furnished, in which case the drums are made of 16-in. diameter, on account of the limitations imposed by the use of balloon type tires. Lockheed type hydraulically-operated brakes may also be obtained as special equipment, and where necessary, provision can be made for the use of air-operated brakes.

There appears to be a tendency toward the use of dual type pneumatic tires on motor buses, mounted on disk wheels. This necessitates special hub equipment. Careful attention has been given to the complete inclosure of the working parts, with a view to preventing loss of lubricant and the admission of dirt.

While the tread indicated in the drawing is 56 in. for single tires and 55⅛ in. for dual tires, this axle is obtainable with either 68 or 70- in. tread.

EDITORIAL

Gasoline Prices

THE fact that there have been two increases in the price of gasoline in quick succession recently seems to indicate that we are now definitely on the upward slope of a fuel price cycle. It was formerly believed by many that a continued rise in fuel prices was indicative of the approaching exhaustion of our petroleum fields, but it has now been pretty well established that the prices of petroleum products, like those of other commodities, are governed primarily by the relation between supply and demand. The very fact that gasoline could go down to practically one-half the peak price shows that the exhaustion of the sources had nothing to do with the preceding rise, for however remote exhaustion may be, we are approaching it all the time, and, therefore, were approaching it the past two years while prices declined.

The automobile industry can no longer be scared by the fuel exhaustion bogy, for we now know that even if our petroleum fields should run dry, there are many other sources of motor fuel that will be developed as soon as the need for a substitute for gasoline becomes sufficiently acute. In the meantime gasoline prices will continue to be governed by the law of supply and demand. By supply we refer here to the actual visible supply carried in stock and not to the total amount of liquid fuel in the earth.

The oil industry, of course, sets fuel prices; it controls the supplies, and if the demand were an absolutely fixed factor it would have the situation completely in hand. However, the same as in other markets, a lowering of prices encourages the demand, and vice versa, and this tends to keep fuel prices within reasonable limits.

Bus Statistics

THE need for better statistics concerning bus development was recognized definitely at a recent N. A. C. C. truck meeting, which adopted a proposal that manufacturers in the future report bus production separately from truck output in their regular reports to the Chamber. If this proposal is carried out fully a real step in advance will have been made.

That the bus business has grown rapidly in the last twelve months is evident. But it has been extremely difficult up to the present to gage the degree of development with any accuracy.

In addition to segregated production statistics, however, segregated registration figures are needed badly. At present the confusion of classification in the various States is considerable.

The industry might well draft a proposal for classification of motor vehicle registrations which would provide detailed and adequate data upon which to base marketing and production plans.

While it would be difficult to get such a proposal adopted by the 48 States, a start has to be made some time and should not be delayed any longer than necessary.

Roads That Endure

IN years gone by we were inclined to bewail our fate in not having a system of improved roads similar to that found in any of the leading European countries, but it now looks very much as though what then seemed to be a misfortune may actually have been the reverse. This reflection is prompted by continued reports concerning the bad state of the roads in France, Germany and even Great Britain.

That the road systems of these countries have passed into a bad state of repair is, of course, in a measure due to the war, which greatly intensified the traffic in certain sections and made it impossible to give the roads the usual care. A recent review of the road situation in France places the blame on the constant decrease in the expenditure for maintenance, and motoring interests in that country are now fighting for the creation of Bureau of Roads similar to the Road Board in England. In Germany deterioration of the roads also has become acute, and a new system of financing repairs under the title of "advance contribution" is now under consideration.

Although the war and its accompaniments undoubtedly bear a large part of the responsibility for the state of affairs noted, it is undeniable that the macadam type of road abounding in Europe is very poorly suited to motor traffic. Pneumatic tires draw the binder from between the larger units of the road material, the wind blows it away and the road is soon full of potholes and ruts.

We never had many of these roads in this country, but the few we had taught us that this is not the kind of road to build for automobile traffic, so, when the good roads movement got well under way, after a short period during which tar-macadam roads seemed to provide the solution of the dust and excessive wear evils, we soon came to the concrete road, which now figures prominently in all road building programs. European nations with their macadam road systems are now or will shortly find themselves somewhat in the position of a manufacturer with a lot of obsolete equipment.

Our Industry Today—

January Results Prove Encouraging to Manufacturers —General Rise In Production Expected by April—Some Consolidations Probable

NEW YORK, Feb. 2—While complete production figures for the first month of 1925 are not at hand, enough of them have been gleaned from the manufacturing centers to show that the new year started out with encouraging results. Production for January exceeded that of the last month of the old year. This is favorable and adds weight to the optimistic expressions of the manufacturers as to what is to develop further on toward the middle of the year. April is expected to show a general picking up along all lines of the industry.

So far this year this increased betterment has been most notable in the bus and truck field. Demand for commercial vehicles has been on such a largely increased scale that operations have been speeded up in this branch of the industry. Prospects in this line have advanced far beyond the visionary stage, in fact, realizations may extend farther than the predictions.

More Mergers Probable

Financial circles have begun to take note of these truths, long since known to those close to the industry. Some consolidations already have taken place. Others undoubtedly will follow. The automotive industry is not so old as some other lines of manufacture in which giant organizations have been built up, but it has not ceased to progress in that direction. Following the standardization tendencies that have been developing of late more than ever there will be noted in the future a greater trend toward coordination in order to hold down overhead expenses.

With the prices of material necessary for the manufacturing of automobiles showing a tendency to go up, the necessity for holding down costs in every direction possible becomes obvious. Recent reductions in prices of automobiles have been made feasible only by elimination of small costs that previously reached large proportions when figured collectively.

Reports from all sections of the country, boiled down and analyzed as a whole, are encouraging. Weather conditions have been far from favorable, but in spite of this the automobile trade has more than held its own. This has served to cause the manufacturers to keep up to their schedules and as the greater demand comes when weather conditions improve they probably will increase them.

Open Car Not to Disappear

They say that although the rapid advance of the closed model in popularity has been pronounced, the impression gained at all of the shows is that the open car is by no means a thing of the past.

Retail Conditions Show Improvement

Reports from All Sections Reveal a Better Trend in Sales and Prospects

NEW YORK, Feb. 5—A record of sales that surpassed those of the closing month of the old year and in, an unexpected number of cases, exceeded those of the same months of 1924, is the trend revealed in the reports of retail conditions for January, 1925, sent to AUTOMOTIVE INDUSTRIES from all the important centers of the country. The only discordant note in the generally cheerful tone of the statements is that pertaining to sales of used cars. These have not been going so well, but the demand for new cars has exceeded that of a year ago, according to the reports, taken as a whole, and stocks are low.

Retail dealers did not start the new year with heavy inventories. If, as the open weather months approach, the demand keeps up on a comparative scale as noted in January, increasing of schedules by quite a few manufacturers will be necessary.

Closed Models Bring Quick Response

The favorable response on the part of the public to the general introduction of the closed car as the standard, with the accompanying lowering of prices for models of this kind, has served to stabilize the market. Henceforth not so many automobiles will be stored away during cold weather, and there will be an increased lessening of the tendency to wait for the advent of spring before making purchases.

Shows stimulated sales wherever they were held. Those cities which still are to have their annual exhibits report a holding off of buyers until they have an opportunity to examine all the new models. Analyses of the conditions which these communities anticipate they will have to report for February are favorable.

From the farthest point West in the territory covered in the review comes this favorable dispatch:

"Business for the new year in Seattle and the Pacific Northwest opened up in pleasing fashion, and this January will show heavier sales than the same month a year ago and heavier than the last few months. The lumber industry is on a good basis, and the rural buying sections are in a better buying mood than they have been for some time. Stocks on hand are nominal, and the used car situation is not overburdensome to the average dealer."

Des Moines, out in the State where the farmer is enthralled by the idea of getting over $2 a bushel for his wheat, sends this message:

"Brighter weather during January helped to make the month's sales in almost all lines of cars better than during the last month of 1924. The opening month of 1925, likewise, was better than the same month last year. While the movement of used cars is anything but brisk, this phase of the industry is better than usual. Rural dealers are stocking heavier in anticipation of much better business. More inquiries have been received by distributors than for some time."

Michigan voices the situation that prevails in a number of States. It reports that, "starting with the annual automobile show there, retail business has shown a decided change for the better, and dealers are looking for a continuance through the early part of the year at least. Sales at the Detroit show and since have been on a par, if not exceeding any similar period. Although deliveries are delayed in some lines owing to a temporary shortage of several closed models, there is a normal number of used cars in dealers' hands, but these will move rapidly if there is a continuance of promised favorable industrial conditions. To some extent there has been a concentration of sales in fewer dealerships, but all changes are now about through for the season and everything is set for a steady full ahead, the correspondent says.

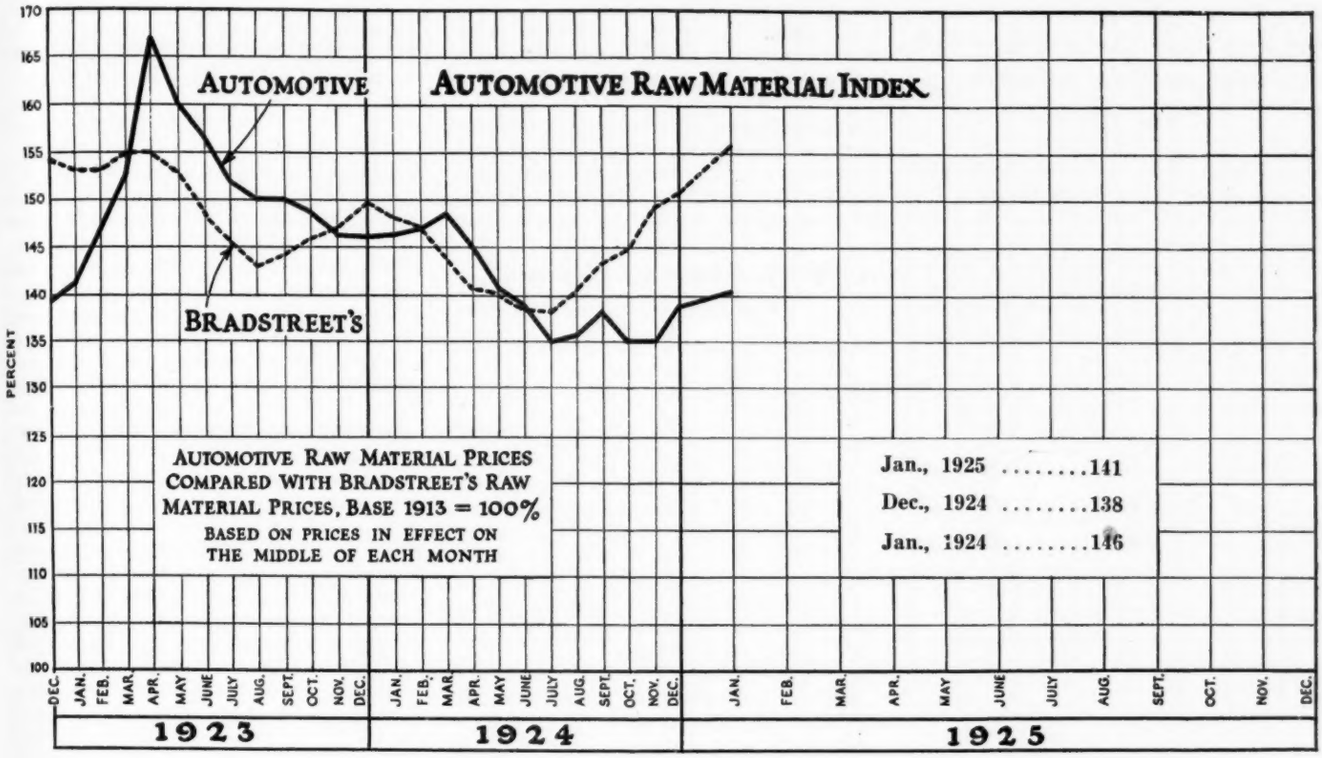
Rocky Mountain Sales Better

From the Rocky Mountain territory comes one of the most optimistic reports. Denver sends this dispatch:

January automobile sales in most lines have been the best in history here. The expected post-Christmas slump turned into an increase. Prospects are better than ever. Light models are in great demand. Expensive machines show a corresponding increase. Dealers are planning for much expansion. Truck prospects are bright.

(*Continued on page* 241)

COSTS OF MATERIALS GAIN IN JANUARY



Retail Conditions Show Improvement in January

(*Continued from page* 240)

Los Angeles reports no perceptible stimulation in January sales, but says the demand for closed models, even in that sunny section, continues to increase. The Rural business there is reported as slow, with the used car business very quiet.

Midwest in Healthy State

From Indianapolis comes the information that sales conditions in Indiana are in a healthy state. Buying there does not become brisk until after the show, which is booked for the first week in March this year. Distributors agree that the March business promises to be up to last year's peak.

Milwaukee reports that under the stimulus of the annual show, passenger car sales are marked by a very distinctive upward curve, which is fully expected to be sustained in February. There seems to be plenty of money, the correspondent says, and the situation is growing better. The dispatch adds: "Used car offerings represent a relatively enormous total. Complaint is heard in many quarters that stocks are piling up, but the situation generally is not described as uncomfortable. New car sales are good to excellent; used car sales are fair to slow."

Salt Lake City reports that the automobile business has recovered from the slump caused by the below-zero weather. The used car situation is reported as fair and that the general outlook is exceptionally good. "Everyone believes 1925 will be the best in Utah's recent history."

Kansas City Reports Increase

Kansas City reports that new car sales increased substantially over December and January a year ago, and that there has been an increase in the proportion of sales to persons who have the ready money to pay for cars purchased. Closed car sales are running ahead of open car sales. Used cars, however, have slumped still further there, both from December and January a year ago.

Minneapolis reports that there is nothing but optimism in the Twin Cities as to the present and future of automotive business. The correspondent says the fact that the farmers have had money to pay their bills has had a strong uplifting effect, and the money again is in circulation after having been paid to the banks to take up notes and other forms of indebtedness.

Reports from the Chicago territory are to the effect that general expectations in the retail field are for a healthful pick-up as the result of seasonal interest, the show incentive and the betterment of conditions. January for the trade at large there was a normal January, which means a limited volume of business. There was noted a hesitancy of prospects who wanted to hold off until after an opportunity to make comparisons of models at the show. Used car sales probably declined slightly, as compared with with December, with used car stocks remaining about the same.

Toledo reports an increase in orders for January; Cleveland sales on a level with January of last year and in excess of those in December, while Cincinnati's statement is to the effect that new car sales could be rated as good, used car sales as fair and that prospects are bright. St. Louis reports increased January sales and dealers' stocks as the lowest on record.

Weather Affects Sales in East

In the East the severe January weather has affected sales. Figures for the New York City territory show sales running about 1000 behind those of January a year ago. This is attributed to the heavy snows and unfavorable weather generally in all parts of New York State. Prosperity prevails and money is plentiful. As the weather grows better sales are likely to be on a greatly increased scale.

Philadelphia reports that new car sales improved substantially over those of December, with a small increase over the corresponding month of last year. Used car sales were about the same as in December and better than in the corresponding month of 1924. Stocks of dealers' trade-ins have been notably well cleaned up, the correspondent there writes. Sales prospects in the rural districts have improved.

In New England conditions are about the same as in the New York section. In the national capital dealers are gratified over the interest shown in the new mod-

(*Continued on page* 244)

A. E. S. A. Chooses Thomas as President

Speakers at Convention Tell Members How to Better Their Service

CHICAGO, Feb. 4—The Chicago convention of the Automotive Electric Service Association was marked by constructive work.

Selling the customer on the idea that he was really getting something of value in a repair job was particularly stressed by F. S. Armstrong, sales manager of the Vesta Battery Co.

Mr. Kettering, fighting a heavy talking schedule, managed to get to the A. E. S. A. meeting Wednesday shortly before noon and talked on the necessity of studying the fundamentals of any job.

Radio as a winter business was outlined by V. W. Collamore, assistant sales manager of the Atwater Kent Manufacturing Co. He stated that the sellers' market stage of radio merchandising is passing, but that good business methods will produce profits from radio sales.

Another line to increase sales was mentioned by J. H. Shoemaker of the Perfection Heater and Manufacturing Co., who showed that the electrical service station men capable of working a hacksaw and wrench could install heaters when the other work dropped off. He also mentioned carbureter service and sales as a natural accompaniment to ignition work.

Another possibility of profit to the electrical service station was brought out by representatives of lamp and bulb concerns.

H. H. C. Weed of the Carter Carbureter Co. forcefully presented the fundamental considerations in taking on lines to round out a service station's business program.

David Beecroft of the Class Journal Co. talked on the subject of putting "pep" into service and of the fundamental purpose of serving honestly and well which determines the ability of a business to go forward to a successful period of usefulness to the community.

New Officers

New officers of the association elected were as follows:

President, R. R. Thomas, Electric Equipment Co., Los Angeles, Cal.
Vice-president, H. F. Bush, Auto Equipment Service Co., Philadelphia, Pa.
Secretary, Adolph Wagner, H. T. Electric Co., Indianapolis, Ind.
Treasurer, F. W. Duffeck Electric Power Maintenance Co., Toledo, Ohio.

In addition to the officers named, members of the board of governors for the ensuing year include the following:

Ernest Ingold, Automotive Agency, San Francisco; B. Frank Hall, Southern Auto and Equipment Co., Atlanta; Arthur Jones, Arthur Jones Electric Co., Chicago; D. W. Burke, Auto Electric and Service Corp., Detroit; C. T. Stevens, Reinhard Brothers Co., Minneapolis; E. S. Cowie, E. S. Cowie Electric Co., Kansas City, Mo.; H. B. Noyes, Auto Electric and Radio Corp., Omaha, Neb.; J. Harry Hearnen, Trenton, N. J.; P. J. Durham, P. J. Durham Co., New York City; Gordon Prentice, Sunset Electric Co., Seattle, Wash., and G. J. Beattie, Auto Starter and Generator Repair Co., Toronto, Canada.

An executive and manufacturers' relations committee was chosen. It includes Messrs. Burke, Hearnen, Deffeck and Thomas. A by-laws committee was named. It consists of Messrs. Noyes, Stevens, Ingold and Hall.

A. M. A. Plans to Extend Credit Service System

CHICAGO, Feb. 3—Plans for a comprehensive credit service system to be inaugurated in the near future were outlined by W. E. Green, secretary, at a meeting of the Automotive Manufacturers Association held at City Hall here. The association has always supplied its members with credit information, but under the new arrangement this service hereafter will be much more elaborate and complete and, according to the explanation made by Mr. Green, it promises to become an outstanding feature of the association's program of constructive assistance for members.

One of the interesting show week attractions in Chicago was the Sales Executives' Congress staged by the A. M. A. in conjunction with the Wednesday night gathering. The speakers of the evening were Noble T. Praigg, president of Kiser & Co., Chicago, merchandising counsellors, and Ray Sherman.

Haynes Automobile Plant Is Again to Be Offered

KOKOMO, IND., Feb. 4—The property of the bankrupt Haynes Automobile Co. is to be readvertised for sale, following the receiving of bids here Jan. 22 which were considered too low for acceptance. Those in charge of the property are awaiting a decision by the federal court which will determine the amount of property covered by the mortgage held by bondholders.

Bondholders bid $300,000 on the unmortgaged property at the sale date and $380,000 for both mortgaged and unmortgaged property. Michael Levy, representing Michael Fauber and S. L. Winternitz, jointly, of Chicago, bid $25,000 on the service department and the same sum on the production inventory.

When the two inventories were offered together Mr. Levy bid $75,000.

ROCK ISLAND BUYS BRINCK

ROCK ISLAND, ILL., Feb. 3—The Rock Island Manufacturing Co. of this place has taken over the manufacture and sale of products previously manufactured by the Brinck Manufacturing Co. of Moline, Ill. These products include the Brinck storm and sun shield, rim tools, step plates and luggage carriers.

Old Timers Change to "The 500 Club"

Only Those in Automotive Industry 10 Years Eligible—Officers Elected

CHICAGO, Feb. 4—The Old Timers' Club, at its annual meeting and dinner at the Congress Hotel here, changed its name to the 500 Club of the Automotive Industry and elected new officers. The new officers are:

President, Vincent Bendix, president Bendix Corp., Chicago.

Vice-president, Martin I. Pulcher, vice-president and general manager of Federal Motor Truck Co., Detroit.

Secretary and treasurer, Gregory Flynn, Detroit manager of B. F. Goodrich Co.

The board of directors is as follows: Albert Champion, president A. C. Spark Plug Co., Flint, Mich.; W. L. Hughson, president W. L. Hughson Co., San Francisco; Capt. E. V. Rickenbacker, Rickenbacker Motor Car Co., Detroit; C. G. Sinsabaugh, managing editor *American Motorist*, Washington, D. C.; Lloyd Maxwell, general manager Williams & Cunningham, Chicago; William T. Morris, vice-president and general manager American Chain Co., Bridgeport, Conn.; Oliver G. Temme, secretary Temme Spring Corp., Chicago; Harry P. Branstetter, Kissel dealer, Chicago; Harry H. Bassett, general manager Buick Motor Co., Flint, Mich.; Sidney Black, sales manager, Cleveland Automobile Co., Cleveland; James Levy, Buick dealer, Chicago; Walter Bermingham, Chicago *Evening Post;* E. V. Rippingille, sales manager Dayton Engineering Laboratories Co., Dayton, Ohio; J. E. Fields, sales manager Maxwell-Chrysler, Detroit; and J. H. McDuffee, Prest-O-Lite Co., Indianapolis.

A resolution was adopted providing that only those shall be eligible to membership in the club who have served at least 10 years in the automotive industry. Heretofore five years of service was sufficient for eligibility.

General Motors Agents Win Advertising Award

NEW YORK, Feb. 4—The Harvard advertising award of $1,500 for the most effective campaign of a general or institutional nature conducted during 1924, has been assigned to Barton, Durstine & Osborn, advertising agents for General Motors Corp.

More than 5000 complete advertising campaigns submitted by 175 advertisers and advertising agencies were considered. The jury making the awards consisted of ten of the leading advertising men of agencies, advertisers and publishers.

In addition, Barton, Durstine & Osborn also were awarded two of the four other major awards of the Harvard contest, which was founded by E. W. Bok.

Firestone Says Year Is Industry's Best

Gives Optimistic Interview After Seeing President Coolidge

WASHINGTON, Feb. 4—Harvey S. Firestone, president of the Firestone Tire and Rubber Co., who passed through here en route to his winter home in Miami Beach, Fla., frankly declared that he is looking forward to 1925 as the best and most substantial year in the automobile and rubber industries. In fact, he confidently predicted an era of prosperity in the United States in virtually every line of business.

There has been quite a change during the period 1900 to 1925, Mr. Firestone confided in a personal interview with AUTOMOTIVE INDUSTRIES representative, granted following his visit at the White House to see President Coolidge. "We have seen a great change in the methods and means of transportation. I believe the change has affected the lives of every man, woman and child to a greater extent than have few other developments."

Continuing, Mr. Firestone said:

And moving along with the steady advance in transportation our company has moved. I look back with pride over the 25 years that have passed—from the time the Firestone company started with a dozen persons on the payroll up to the present with about 12,000 on the payroll.

It's a big jump from 25 tires a day to 32,000 a day, and we are now making plans to increase our capacity to 38,000 tires daily. Today we are making about 37,000 tubes and we are installing equipment to increase this capacity to 45,000.

The year 1925 looks very bright for us and for the entire rubber industry. Last year was a busy year. Of course we had unusual price fluctuations, caused largely by the British rubber restrictions act, reducing the exportation of rubber Aug. 1 from 60 per cent of normal to 55 per cent to 50 per cent, forcing the price of crude rubber to advance from 17 cents a pound to as high as 40 cents.

I look forward to this year being one of the best and most substantial years in the automotive industry. Twenty-five years ago the total car registration was about 5000. Today there are over 15,000,000 pleasure cars alone.

The population in this country has advanced steadily. The general average of prosperity is much higher than it was 25 years ago, making it possible for a greater percentage of the public to afford cars. The demand for motor cars will continue to grow for decades. Sales this year should be at least 3,500,000 cars, according to most conservative estimates.

Looks like a very busy year, and I just thought before starting the next 25-year lap I'd take a vacation of at least two months in the Florida sunshine, then return to Akron, roll up my sleeves and go to work.

COAST LIGHT APPROVALS

SACRAMENTO, CAL., Feb. 4—Following is the list of auxiliary lights and spotlights approved by the State Motor Vehicle Department, according to the 1923 specifications: Auxiliary Lights, Triple-lite and Auto-Pass; spotlights, Anderson Auto Reelite spotlight (model B. & G.); circlite spotlight, Clymer windshield spotlight, Delta inside auto spotlight No. 66, Fyrac windshield spotlight, Kaufman spotlight, Kay Bee "Little King" spotlight, S. & M. spotlight No. 90, Shot-Lite spotlight No. 10, Side ray spotlight No. 12, and Wonder spotlight. All spotlights that comply with Section 108 of the 1923 California vehicle act are legal, whether listed above or not.

Citroen Starts Work on Milan Factory

PARIS, Jan. 29 (*by mail*)—Ground has been broken on the construction at Milan, Italy, of a Citroen automobile factory having a floor area of 624,000 sq. ft. for the recently formed Citroen Italian Automobile Co. Building will be pushed forward rapidly with the intention of getting into production before the end of the year.

This organization is a branch of the French Citroen Automobile Co. and will build for the Italian and Central European markets. This is the first time a foreign automobile manufacturer has attempted to construct on Italian territory.

A new factory, forming an addition to the Fiat Lingotto works on the suburbs of Turin—believed to be the biggest automobile factory in the world under a single roof—is now nearing completion. This is being put up specially for the construction of the Fiat 509 model, a popular two-seater. of about 8 nominal hp., which was exhibited at the last Paris show.

It is believed the factory will be in production this year.

Gives 7½ Cents a Mile as Minimum Cost

WASHINGTON, Feb. 4—In an appropriation hearing before Congress Engineer Commissioner J. Franklin Bell here advised that the records of his department showed that the minimum cost at which a passenger automobile may be operated is 7½ cents a mile. This includes gasoline, oil, tires, repairs, labor and materials.

It was brought out that in many instances the records showed that the cost of operation will go up to 15 or 20 cents a mile.

Baltimore Gets Schneider International Race

WASHINGTON, Feb. 4—Baltimore has been awarded the Schneider international seaplane race for 1925. The award was made here by the contest committee of the National Aeronautic Association. The race, it was agreed, will be held Oct. 24 or 31. Officials of the Flying Club of Baltimore who will select the dates intimate that Oct. 24 probably will be chosen.

C. C. Hanch to Manage Finance Association

Appointment of N. A. C. C. Vice-President Announced—Membership Drive

CHICAGO, Feb. 4—C. C. Hanch, vice-president of the National Automobile Chamber of Commerce, passenger car division, has been appointed to the position of general manager of the National Association of Finance Companies. Announcement to this effect was made by A. E. Brocker, president of the finance association, following a meeting of the Executive Committee.

The executive body is unanimous in the opinion that this selection will meet the full approval of the organization's members, Mr. Hanch's wide experience in the industry and his large acquaintance with industrial factors and bankers being regarded as excellent qualifications for this particular work.

Mr. Hanch's appointment will relieve W. G. Tennant, of the Tennant Finance Corp., Chicago, of temporary secretarial burdens, Mr. Tennant having agreed to assume these duties until a permanent general manager could be found. Mr. Hanch has established headquarters at 2447 South Michigan Avenue, Chicago, and is preparing to go ahead with the membership drive for 600 enrollments in the United States and Canada. At present the membership is about 200. While this represents a large part of the capitalization in this field, it is believed the strength of the association can be considerably extended numerically.

Permanent launching of the finance association was effected Dec. 10-11 at a meeting in Chicago. The objective was to put into motion a movement designed to curb reckless automobile crediting and put automobile financing on a more safe and sound basis. As the first big step in this direction the convention adopted some articles of policy recommended to all finance organizations dealing in automobile retail paper for effective operation east of the Rockies on Feb. 1 and west of the Rockies as soon after Feb. 1 as possible.

The policy adopted urges maximum maturity on new automobile retail extensions not in excess of 12 months, payable in 12 equal monthly installments; minimum down payment on new cars, including equipment of not less than one-third the cash or 30 per cent of the time-selling price at point of delivery; minimum down payment on used cars of not less than 40 per cent of the cash or 37 per cent of the time selling price at point of delivery, including all equipment.

KELLY SHIPS TO NORTHWEST

SPRINGFIELD, OHIO, Feb. 3—The Kelly-Springfield Motor Truck Co. has booked an order for a fleet of 11 Kelly trucks for the Northwest.

Makers Increase Their Schedules

A Number of Companies This Month Have Arranged for Practical Capacity Operation

DETROIT, Feb. 4 — Manufacturing schedules will show increases during the present month, but, due to its shortness and the appearance of several holidays, the month's total is not expected to exceed the January total of 220,000 by any considerable figure. The real manufacturing of the year will not get under way until March, as few, if any, manufacturers are shipping cars in quanties larger than the existing retail demand.

Practically all manufacturing now is on closed cars. This is definite indication that shipments are being made to meet railroad demand. Ordinarily the open car would be in full process of manufacture in most plants to meet the spring and summer trade, but manufacturers are not making them because it would involve the dealer storing them 30 to 60 days. This necessarily is holding factory production low and open car departments are practically closed in many plants.

Although manufacturers generally are of the opinion that there will be a greatly reduced open car trade this year, there is still certainty that there will be a considerable volume of business in the spring and summer months. They are not able to prepare for this, owing to the dealer desire to keep stocks down. The large volume of business at the present time is in low priced closed cars, but these also are being taken by dealers only in quantities making for rapid turnover.

That shipments from factories are almost entirely against dealer orders is a statement borne out by the fact that there are fewer freight cars being held because of dealer delay in taking cars than at any time before. Dealers not only require the cars being shipped them, but in many cases are actually waiting for them to arrive so that they may turn them over immediately to buyers. There is no demurrage being paid on freight cars which dealers are unable to unload. This is considered somewhat of a record for the time of the year.

Market Conditions Improved

The rapidity with which cars are moved after being received indicates to factory executives that market conditions are very good and will greatly improve as the better months come. There are fewer new cars in dealers' hands at present than ever before at this time of the year and there are fewer cars stored by factories. This is due more to uncertainty of the open car market than uncertainty as to the general car market. There will be some brief shortage of cars probably until the trend of the market is definitely shown.

Factories are not seeking to stock dealers against their desire. It is being pointed out, however, that some stocking should be done to meet heavy spring buying. More than 40 per cent of the sales last year were made in March, April and May in the average cities and in the country.

This fact is being urged as a reason for getting ready to meet heavy buying this year. The fact that closed cars give all year service does not preclude the certainty of heavier buying in spring months than in others, either of closed or open cars, manufacturers hold, and they wish to guard against shortages leading to lost business.

The Ford schedule of approximately 120,000 cars in January will be increased this month, as will the schedules of practically all makers. Schedules of close to 20,000 have been set by a number of makers, which is almost capacity operation.

Retail Conditions Show Improvements

(*Continued from page* 241)

els and expect 1925 to be one of their best years.

Conditions in South Mixed

Reports from the South are mixed. Louisville reports passenger car sales in January as only fair, affected by adverse weather conditions and the proximity of the automobile show, booked for Feb. 16-21.

Birmingham reports that since Jan. 1 there has been a gain in business reported by all dealers of low and medium priced cars, while the dealers in higher priced cars have not been so fortunate. Used cars there have been moving fairly well, but they remain a paramount problem. A much larger demand for new and used cars is anticipated for early spring.

New Orleans reports as follows:

Some dealers started off the new year rather dull, but that business picked up the latter part of the month. Conditions here are bright as to prospects. Money seems plentiful in the farming sections of Louisiana and Mississippi that were hard hit by the drouth last year. They are expecting good crops on account of the plentiful rains lately.

Dallas reports that Texas new car sales in January were 15 per cent under those of December. Medium priced vehicles are the favorites there. Dealers are not overstocked. Used car sales decreased 10 per cent. The tire and accessory trade slowed up. Garage business improved 10 per cent. The outlook in all lines is promising in Texas.

BIG FOUR ADDS MOTOR CARS

SPRINGFIELD, OHIO, Feb. 3—Six more gasoline driven motor cars are to be placed in service by the Big Four system. They will be used to take care of local traffic.

Cars Steam Cooled and Heated Probable

Experiments Prove Such Success That Water System May Be Supplanted

DETROIT, Feb. 4—Steam cooled and steam heated cars are an extremely probable development of the immediate future. One of the industry's largest producers has been experimenting with steam cooling for some time and similar research work has been going on in other quarters. It is understood the results obtained in these investigations have been so satisfactory as to warrant the early adoption of this method of cooling, and that the only real obstacle in its way, is the hesitancy felt by some executives in making the change from the traditional water cooled system.

As a part of this work, the practicability of steam heating the interior of the car was also investigated. Small sections of radiator core were mounted in the driver's compartment and tonneau and a portion of the steam developed in the cylinder jackets diverted to them. These experiments indicate that the idea is workable and that the results obtained compare favorably with any present method of heating car interiors.

As a result of the experimental work that has been done to date, it is stated that steam cooling introduces no complications nor are any radical changes necessary in present engine designs. The only thing needed which is not on the water cooled car with pump circulation, is a steam dome and this may be mounted on the cylinder block or incorporated with the radiator. A positive type of pump is said not to be necessary as the system will function satisfactorily with a well-designed, single stage centrifugal unit. The external appearance of the car would not be affected in any way by the change to steam cooling.

Detonation has been advanced frequently as an objection to steam cooling, it being held that the higher temperatures would be more likely to induce "pinging." In answer to this, it is stated that, if an engine does not develop detonation troubles when operated with water cooling, no fuel knocks will be encountered when a change is made to steam cooling.

No Trouble in Winter

No more trouble is experienced with points of localized high wall temperature than in the water cooled job. In this connection, it is asserted that the function of the pump is simply to deliver the condensate from the bottom of the radiator to the cylinder jackets, no forced circulation of the cooling medium being required because of the turbulence created by the boiling action.

No troubles are encountered in winter due to the evaporation of the anti-freeze material.

Ford Opens Large Plant in Kentucky

New Structure at Louisville Has Capacity of Assembling 400 Units a Day

LOUISVILLE, KY., Feb. 4—Assemblage of the 11,101,550th automobile manufactured by Henry Ford marked the opening of the large new Ford plant on Western Parkway, opposite the Kentucky State fairgrounds.

The property site was acquired by Mr. Ford through an act of the last general assembly. Work was started last May. The plant, with 301,000 sq. ft. of floor space, is said to be the largest building under one roof in the South.

Approximate cost of the plant is $1,500,000. It is to take the place of the existing branch factory at 2500 South Third Street and will have a capacity of 400 units a day. It will be the center of distribution for 60 Kentucky, 39 Tennessee and 12 Indiana counties.

Natural light is used as much as possible in the new plant, there being 98,000 sq. ft. of glass in the roof and 52,000 sq. ft. in the side wall. In addition there are 1502 overhead electric lights. Fourteen carloads of window sashes were put in the building. The windows will be opened and closed by motor power.

One thousand workers will be on the payroll of the new plant, at an average salary of $6 a day.

Fuel oil is used exclusively throughout the power plant, and the labor and dirt of coal is done away with.

Two hundred dealers will receive their cars from the plant, and 900 service dealers will be supplied from there.

E. L. McPhee, branch manager, will be in charge; O. P. Ramsey will be assistant manager; F. A. Slater, wholesale manager; T. P. Roach, head of the Lincoln department; G. A. Liles, factory superintendent; F. A. Lucas, head of the tractor department, and G. C. Quarles, head of the truck department.

Gotfredson Brings Out a New Bus Chassis

DETROIT, Feb. 4—A new six cylinder bus chassis, suitable for use in either urban or fast interurban service, has been brought out by the Gotfredson Truck Corp. The chassis lists at $4,950.

To permit low floor height with no obstruction in the center aisle, the engine, propeller shaft and differential are offset to the left of the frame. The frame has been made unusually stiff, not only to support the heavy bodies which will be mounted on it, but also to protect them from weaving strains. Service brakes act internally on drums on all four wheels and are operated by the Westinghouse air system.

The engine is a six cylinder Buda with 4 in. bore and 5⅛ in. stroke, and is equipped with Zenith carbureter, United air cleaner, North East starting and lighting, and magneto ignition. The air compressor is driven by V-belt from the water pump shaft. The multiple disk clutch and selective gearset are mounted with the engine to make up a unit power which is supported at three points.

The propeller shaft is in two pieces, with three metal universal joints. It is supported centrally in an SKF self-aligning ball bearing from one of the frame cross-members. The rear axle is a full floating type with taper roller bearings at the wheels and differentials and with SKF ball bearings on the worm-shaft. Springs are semi-elliptic all around, those at the rear being underslung. The steering gear is a cam and lever type.

The frame side rails have a maximum depth of 8⅝ in. with 3¼ in. flanges, and are pressed from ¼ in. stock. With one exception, all cross-members are 3-in. diameter tubes with a wall thickness of ¼ in. The exception is the drop-forged member which supports the front of the engine.

G. M. C. President Announces Changes

NEW YORK, Feb. 5—Alfred P. Sloan, Jr., president of the General Motors Corp., announces the transfer of George H. Hannum, general manager of the Oakland motor car division, to the position of mechanical assistant to the president of General Motors and the promotion of A. R. Glancy, now assistant general manager of the Oakland division, to the position of general manager of that division.

I. J. Reuter has been appointed general manager of the Olds Motor division. Mr. Reuter has been transferred from the Remy Electric division, where he has been general manager.

C. E. Wilson has been appointed general manager of the Remy Electric division from the position of assistant general manager of that division.

JEWETT PRICES ADVANCED

NEW YORK, Feb. 5—Announcement has been received here that the Paige-Detroit Motor Co. has advanced the price of Jewett cars an average of $30 for each model, effective Feb. 15.

OFFERS STOCK AT $30

NEW YORK, Feb. 4—Martin-Parry Corp. directors announce an offering of 25,000 shares of stock to shareholders at $30 a share. Stockholders of record at the close of business Feb. 17 are given the right to subscribe for one share of new stock for every four shares owned.

G. W. YEOMAN RESIGNS

DETROIT, Feb. 4—The resignation of George W. Yeoman as vice-president of Continental Motors Corp. was announced following a meeting of the directors at which formal action on the resignation was taken.

Advertisers Forecast a Gain Over 1924

Detroit Convention Hears Replies to Questionnaires Sent 150 Cities

DETROIT, Feb. 4—Good business throughout the year for the Middle-West, with the East and South sharing it later in the year, is predicted from a report read at the convention here of the fifth district and the National Commission of the Associated Advertising Clubs of the World. The report is based on statistics assembled from questionnaires from 150 cities of the country and was read by Theodore G. Morgan, chairman of the Executive Committee.

The report said in part:

Detroit and its vicinity have had several ups and downs during the past year. The first three months were very active and then came a slack spring and summer. At the close of the year business had improved sufficiently to make 1924 a remarkable year with prospects decidedly favorable for a marked increase in 1925. Bank clearings showed an increase of 10 per cent over 1923, the best previous year; savings deposits rose for the first time above $300,000,000 and showed a gain of $33,000,000 over 1923.

Detroit's automobile output for 1924 reached 2,760,000, which established a new production record, but which 1925 will surpass.

At the close of the year 124 firms in various lines of business were questioned as to future business and 67.74 per cent reported improvements, only 1.61 reporting declines. As Detroit is an enormous purchaser of raw materials, many lines of industry will find impetus.

The importance of strengthening international relationships was a theme in the day's addresses and figured largely in the speeches delivered at the evening banquet by Herbert S. Houston, past president of the A. A. C. of W. and by A. Heath Onthank, chief of the domestic commerce division of the United States Bureau of Foreign and Domestic Commerce.

White Reduces Prices on Four Models

CLEVELAND, Feb. 5—Price reductions ranging from $250 to $300 have been announced on light duty models of White trucks, effective as of Feb. 1. According to a statement made by Walter C. White, president of the White Motor Co., the reductions affect four of the 10 White models, including both three-quarter ton and both two-ton models. There is no change in heavy duty trucks or bus chassis prices. Factory expansion and improvement in manufacturing methods have made price reductions possible, said Mr. White.

Optimism Is Spread at Chicago Feasts

Closer Cooperation Is Indicated Among the Various Associations There

CHICAGO, Feb. 4—Silver anniversary show week here was crowded with banquets, dinners and luncheons.

Closer cooperation in 1925 than ever before between the National Automobile Dealers' Association, the National Automobile Chamber of Commerce and the American Automobile Association was predicted by President Chas. D. Hastings of the Hupp Motor Car Corp. at the dinner given for Hupmobile dealers and distributors. Mr. Hastings predicted a bright and constructive future for the N. A. D. A. and urged Hupmobile dealers to become members of it.

General sales manager O. C. Hutchinson said that dealers should sell accessories as one means of stabilizing their business and making greater profits in the future. There is more money to be made in the automobile business than ever before, Mr. Hutchinson believes, but everybody will have to work harder to get it.

Mr. Hutchinson asked the dealers not to overlook the market for open cars, despite the strong trend toward closed jobs. Hupmobile is planning to build about 18,000 eight cylinder cars and about 30,000 four cylinder models in 1925, he said. Since the company began producing in 1909, Mr. Hutchinson stated, it has built a total of 240,505 automobiles.

Oakland Men Hear of Optimism

The strength of general business in 1925 is certain to be reflected in automobile sales and the growing prosperity of the farmer is a particularly favorable factor in the present economic situation, according to Alfred H. Swayne, vice-president General Motors Corp., who was one of the speakers at the Oakland dealer luncheon held at the Hotel Blackstone. A message from Alfred P. Sloan, president, General Motors Corp., read by C. W. Matheson, director of sales, Oakland Motor Car Co., stated that there must be closer cooperation in the future between dealers and manufacturers than there has been in the past. General Motor Units, Mr. Sloan said, will be very careful in making promises, but always will keep a promise once made.

George H. Hannum, president of the Oakland company, told the dealers that the days of overloading retailers with cars have passed. He pointed out, however, that the factories have to make commitments several months ahead and that their task is difficult in the winter months unless the dealers are willing to stock a reasonable number of units to take care of the spring demand.

Other speakers at the luncheon were A. R. Glancy, assistant general manager, Oakland Motor Car Co.; B. G. Koether, advisory staff, G. M. C.; A. L. Deane, vice-president, General Motors Acceptance Corp.; L. L. Short, general manager, General Exchange Corp.; H. A. Wehmeier, Community Motors, Inc. of Chicago; W. R. Tracy, assistant director of sales, Oakland Motor Car Co. acted as toastmaster.

Packard Tells of Sales Gain

Packard Motor Car Co., Detroit, is laying plans for materially increased production during 1925 to take care of orders expected to follow the recent price cuts. This information was developed at the meeting and luncheon tendered to 300 of its dealers at the Drake Hotel. It was stated that orders on hand greatly exceed the available supply of cars, and this is a condition which the company expects to prevail the first part of 1925. The company's plans call for a substantial increase in the number of dealers.

At the morning session talks were made by R. E. Chamberlain, general sales manager; G. M. Berry, St. Louis distributor; H. N. Davock, service manager; C. S. Richardson, Omaha distributor; J. W. Loranger, W. S. Vorris of Cincinnati, Walter Anthony, Minneapolis distributor, and R. E. MacDuff, former sales manager of Packard branch, Chicago, now a district sales manager with headquarters at the factory.

Moon Men Told of New Model

The new Moon light eight cylinder car, first announcement of which was made at the New York show, will be priced at less than $1,700 for the touring car, it was stated to Moon dealers here by Stewart McDonald, president of the Moon Motor Car Co., of St. Louis. Mr. McDonald made this announcement at a luncheon for dealers given in honor of John H. Quinlan, Moon distributor in the Chicago territory. This new car, which will be an eight-in-line, will be ready for the market about April, Mr. McDonald said.

The engine for this car is being produced by the Continental Motors Corp. exclusively for the Moon company. Some facts about the progress of engine design were told the dealers by President Judson of the Continental company.

Velie Looks for Prosperity

There is no reason why 1925 should not be a prosperous year for the automotive industry, according to F. E. Bradfield, vice-president in charge of sales of the Velie Motors Corp., Moline, Ill., because business conditions in the United States are fundamentally sound. Mr. Bradfield addressed a number of the company's dealers at a meeting held at the Congress Hotel, which was followed by a luncheon tendered to the dealers by the factory.

E. McEwen, factory manager, urged all Velie dealers to keep their records in such shape as to enable them to detect leaks in their business. The company,

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A. A. A. to Fight 1925 Adverse Legislation

President Henry Says Politics Plays Too Great a Part in Car Owner Taxation

Washington, Feb. 4—The outstanding automobile problem of 1925 will be the effort to prevent undesirable motor legislation, in the opinion of Thomas P. Henry, president of the American Automobile Association, who declares there will be more legislation during the present year that will need to be killed than enacted.

Conditions, he says, have reached a point where it is easier to put through an adverse motor law than a helpful one, and with the motorist carrying about as much taxation burden as he is able to shoulder, failure to defeat a number of questionable bills now pending, or about to be introduced, will be a serious handicap to the further progress of motoring and motor transportation.

Referring to the bills that have come to the attention of the A. A. A. legislative board, Mr. Henry says:

Most of the legislation about to be proposed relates to ways and means of extracting more money from the motor car owner who is already paying more than he realizes. If he is taxed further it is probable that he will not be able to make such additional investment in car equipment as to insure his proper returns on his investment in motor transportation.

Taxation Exceeds Needs

Automobile taxation is already far in excess of what is actually needed for highway development, motor vehicle department management and other State and Federal expenses bearing upon motor traffic. Only half of the money paid to the government by motorists as automobile excise taxes goes back into the roads, yet everyone, including the people who are not taxed at all, benefit from the roads.

Prevention of accidents will doubtless continue to be an outstanding problem, but prevention of legislation may easily exceed it. One reason for this is that much of the legislation about to burst upon the nation is of a nature that aggravates the safety problem.

Many of the compulsory insurance bills carry features that are quite as dangerous, as reckless driving, jay-walking or industrial irresponsibility. One of these bills would indemnify anyone who happened to be injured by an automobile regardless of who was to blame or whether there were any witnesses. Of course the motor car owner would be obliged to pay the annual premium.

Politics is playing far too great a part in the field of car owner taxation, and it is politics that we are fighting when we line up against some absurd piece of proposed legislation.

DETROIT EMPLOYMENT UP

DETROIT, Feb. 3—An increase of 587 in industrial employment here for the week ended Jan. 24 was the fourth consecutive gain reported by the Employers' Association. The total was reported as 207,561, against 239,503 a year ago.

Merged Plants Start German Production

Mercedes and Benz Interests Prepare for Industrial Revival

PARIS, Jan. 29 (*by mail*)—Reorganization is now being carried out as the result of the fusion of interests between Mercedes and Benz, the two leading German automobile manufacturers. There are involved five factories—the Mercedes passenger car factory at Cannstatt, near Stuttgart; the Benz passenger car factory at Mannheim; a Mercedes truck factory at Berlin; a Benz truck factory, and a body building works near Stuttgart.

Under the new arrangement the technical work will be centralized at the Mercedes factory, under the control of Dr. Porche, who until recently was chief engineer of the Austro-Daimler Co. All the new models, both passenger cars and trucks, will be designed and tested at the Mercedes works and when ready will be turned over to the individual factories for production. There will be one central office for the purchase of raw material. Factory selling branches are being established throughout Germany to handle both Mercedes and Benz cars. Service stations will be common to the two firms.

Mercedes Producing

Mercedes is already in production on a couple of high grade six cylinder cars, one of 239.5 cu. in. piston displacement, and the other of 366 cu. in. The design is common to the two types. The body space is the same, only the engine dimensions differing. A car of the same general design, with a six cylinder 122 cu. in. engine, will be produced at the Benz works.

All three models are equipped with the Mercedes patent supercharger and at present are the only stock cars in Europe having a forced induction system. The Rootes type blower is at the forward end of the engine, driven by Gleason gears through a multiple disc clutch, and running at three times engine speed. The blower is brought into engagement at the will of the operator. The same type of supercharger has been in use for several years on Mercedes racing cars, but on these machines no clutch is interposed.

Mercedes-Benz Design

The Mercedes-Benz design has been brought into line with the generally accepted French and Italian practice. The cylinders and crankcase are a silicon alloy casting with iron liners, cast iron cylinder head, overhead camshaft with four bearings, four bearing balanced crankshaft, combination cast iron and aluminum pistons and steering gear mounted on either the left or right-hand rear crankcase hanger.

The four speed gearbox is bolted to the engine and drive is through an inclosed propeller shaft with single universal to a banjo rear axle with Gleason spiral bevel gears. Mechanically operated four wheel brakes are used on all models. The transmission brake has been abolished. The Knight engine, which was in production both before and after the war, has been wiped off the program.

Both the Mercedes factory, with 5000 hands, and the Benz factory, employing 4000 men, are being retooled with a view to more economical production. American machinery and labor saving devices are being installed on an important scale and will be in full operation within three months. The program calls for high quality while giving adequate attention to modern production methods.

German Quantity Production

German automobile manufacturers believe that they are now on the eve of a domestic revival similar to that which came to other European countries immediately after the armistice. Several manufacturers are preparing to go into quantity production. Among them is Opel, who, in an entirely new factory at Russelsheim, is building a popular 5-hp. two-seater which the French trade claims is a dead copy of the small Citroen.

It is admitted that low priced American cars will gain a footing on the German market, but the more broad minded members of the industry believe that these will merely serve to open up the market and that the higher quality German car will ultimately reap the benefit.

The German automobile industry as a whole is preparing to play a more important rôle on both the home and foreign markets.

Railroad Offers New York an Automobile Highway

NEW YORK, Feb. 4—In a report submitted to the Board of Estimate here by Borough President Julius Miller, it was stated that the New York Central Railroad Co. is willing to build without cost to New York City a $24,000,000 combined automobile express highway and elevated freight railroad along the west side of Manhattan. In consideration of the improvement the railroad company would accept a readjustment of its rights and easements along its lines and in its yards.

The removal of the tracks would eliminate 106 grade crossings and would provide an entirely new avenue connecting with the vehicular tunnels at Canal Street. The express motor highway would be on the roof of the elevated freight railroad. Of the total cost $13,000,000 is for the freight railroad and $11,000,000 for the motor highway.

PARSONS FRANKLIN DIRECTOR

SYRACUSE, N. Y., Feb. 3—At the annual meeting of the H. H. Franklin Manufacturing Co. Arthur E. Parsons was elected a director to succeed John Wilkinson, resigned.

Midland President is Chosen by Otis

Election of E. J. Kulas Said to Foreshadow Merger of Two Organizations

CLEVELAND, Feb. 4—E. J. Kulas, president of the Midland Steel Products Co., one of the leading manufacturers of automobile frames in the country, has been elected president of the Otis Steel Co.

The Midland Co. has plants in Cleveland and Detroit. It is a merger of the Parish & Bingham Co., and the Detroit Pressed Steel Co. In local financial districts, the election of Kulas to the presidency of both corporations is regarded as a forerunner of the merger of Otis Steel and Midland.

The Otis Co. has mills of all kinds, particularly steel ones, and it recently completed improvements costing $8,000,000. The expenditures last year for plants completed included hot and cold strip mills, four open hearth furnaces, blooming and bar mills plant and the installation of additional boilers. It is expected that under this arrangement of a dual president, the Midland will turn over a large volume of business annually to the Otis Steel.

Financial Status Improved

Mr. Kulas has been very successful in rehabilitating and invigorating the companies that are known as the Midland Steel Products Co. He assumed the presidency of the Parish & Bingham Co., in January, 1923. He then proceeded to organize the Midland Steel Products Co., which took over the Parish and Bingham Co. of Cleveland, and the Detroit Pressed Steel Co. and Parish Manufacturing Co. of Detroit.

Under the management of Mr. Kulas the business of the company has been increased greatly and the financial position of the corporations taken over have been improved greatly.

For 16 years Mr. Kulas was identified with the National Electric Lamp Works Co., which in 1912 was taken over by the General Electric Co.

Otis Founded in 1873

With the General Electric, Mr. Kulas' duties consisted of serving as manager of branches in this country and he was given important assignments abroad. He was made general sales manager for the Peerless Motor Co. in 1913, and when the war started he assisted in organizing the Cuyahoga Stamping and Machine Co., which produced 7,000,000 cartridges for the Italian and American governments. Later he organized the Federal Nut and Bolt Co., which was sold to the Apex Electric Co.

The Otis Steel Co. was founded by a Cleveland resident in 1873 and it has been in continuous operation for more than half a century.

New Jersey Gasoline Tax Plan Opposed

Commissioner Contends Companies Would Seize Opportunity and Add ½ Cent to Fuel Cost

TRENTON, N. J., Feb. 3—While the majority of the special commission which made a study of a system of vehicle taxation favors a plan by which a tax of 1½ cents a gallon would be collected on gasoline used for motors of New Jersey, the minority, including William L. Dill, motor vehicle commissioner, is opposed to the plan, especially in the splitting of a cent in the proposed tax.

The commissioner contends the plan would operate to the financial detriment of automobile owners, as the gasoline companies would utilize their opportunity to add a half cent to the cost of fuel. Opposing the majority opinion with Commissioner Dill are Senator David H. Agans, Sedley H. Phinney, representing the League of Municipalities, and L. A. Cooley, representative of the New Jersey State farm bureau.

Under the majority plan every motor vehicle would pay a flat rate of $3 for license, while drivers' licenses would cost $2. In addition, trucks and buses would pay 15 cents for every 100 lb. carried, including passenger capacity. The weight of passengers would be figured at 125 lb. each, the tax not to apply unless more than eight passengers are carried. Electrically driven vehicles would pay a tax of 30 cents for every 100 lb. of weight carried.

Minority Report Submitted

TRENTON, Feb. 4—Five members of the legislative commission of motor vehicle taxation submitted to the legislature a minority report which voices decidedly different views from those presented by the majority. The signers are Senator David H. Agans, representing the Grange; Senator Francis B. Davis, representing the Senate; William L. Dill, motor vehicle commissioner; L. A. Cooley of the Federation of County Boards of Agriculture and Sedley H. Phinney of the League of Municipalities.

The report emphasizes the need for additional revenues for highways and presents a letter from the State highway engineer, W. G. Sloan, in support. A change in the State policy of highway financing is urged to the end that the motor vehicle shall assume a share of the burden of new highway construction which is now borne entirely by general property taxation.

Policy Called Inelastic

The minority severely criticizes this policy, claiming that it has been urged by motor vehicle interests as a means of keeping down their taxation. It is claimed that this is inelastic, permitting highway officials no discretion, and bears no relation to the highway needs of the State.

The report points out that a large amount of freight formerly transported by the railroads on privately financed rights of way is being transferred to the highways, which are publicly financed rights of way. It is stated that 33 railroads have already adopted motor trucking for part of their freight, that 21 others are studying this plan and that truck competition is taking a large share of short-haul business from the railroads.

Data is presented to show that motorists could readily finance the entire cost of new highway construction due to the saving in operating costs, which it is claimed would far exceed the annual cost of the highway improvement under normal conditions.

$40,630,795 Value of 1924 Rubber Exports

WASHINGTON, Feb. 4—Increased shipments of solid tires and inner tubes for automobiles helped boost the value of United States exports of rubber products in 1924 to $40,630,795, as compared with $36,972,125 in 1923 and $34,009,308 in 1922, it is announced here by the rubber division of the Department of Commerce.

The average unit value per automobile casing exported in 1924 was over $12.00, against $11.25 in 1923. Although tire exports in 1924 numbered only 1,250,000 as compared with 1,363,000 in 1923, the value of the exports fell off but slightly. There was a similar increase (from $1.72 to $1.83) in the average price of inner tubes exported and from $24.50 to $26.50 in the average price of solid tires for automobiles.

Race Schedule for 1925 Announced by A. A. A.

FRANKLIN, PA., Feb. 4—The Contest Board of the A. A. A. announces the following approved championship races scheduled thus far for 1925:

Los Angeles, Cal.	Feb. 22
Fresno, Cal.	April, 30
Charlotte, N. C.	May, 11
Indianapolis, Ind.	May, 30
Altoona, Pa.	June, 13
Altoona, Pa.	Sept. 7
Fresno, Cal.	Sept. 30
Charlotte, N. C.	Oct. 24
Los Angeles, Cal.	Nov. 26

It is announced that other dates are being held open for speedways which are proposed for construction sometime during the year.

NEW FOLBERTH PLANT UNIT

CLEVELAND, Feb. 4—A new plant unit of the Folberth Auto Specialty Co. has been erected at Lake Avenue and West 80th Street, at a cost of $100,000. The structure is two stories high, of mill type construction with steel columns and beams.

$3,360,000,000 Spent on Vehicles in 1924

U. S. Report Shows This Country Had 82.5 Per Cent of Car and Truck Total

WASHINGTON, Feb. 4—With the United States leading with 82.5 per cent of the world's total of automobiles and motor trucks in 1924, the entire universe spent $3,360,000,000 for new motor vehicles last year, according to the Automotive division of the Department of Commerce.

On Jan. 1 there were in operation in all countries 18,615,000 passenger cars, 2,892,000 trucks and 1,262,000 motorcycles. The total of these three classes of motor vehicles was 22,769,000, which brought an increase for the year over the total reported Jan. 1, 1924, of 18 per cent or 3,479,000 vehicles. Of this total increase this country accounted for 2,427,000, or 70 per cent.

The department's official statement said:

Returns from trade agents throughout the world indicate that during the past year there were assimilated 3,300,000 passenger cars and trucks and 200,000 motorcycles, which total number, at the conservative figures of $1,000 average retail value for the cars and trucks and $300 for motorcycles, enabled the department's approximation.

There was an increase of 2,750,000 in passenger cars and approximately 550,000 in trucks during 1924. Motorcycles also pushed more into widespread use, as revealed by the numerical increase of 180,000 over the base registration of 1,075,000 at the beginning of 1924, but this increase was mostly in foreign countries.

The United States now has 84 per cent of all passenger cars, 74 per cent of all trucks and 11 per cent of all motorcycles in the world.

As America's motor vehicles manufacturers give more attention to markets outside the confines of the United States, it is interesting to point out some of the countries which have exhibited the greatest registration strength during the past year. In most cases these new and larger fields are the result of greater export activity by American firms.

Combining passenger cars and trucks, France and the United Kingdom, with gains of well over 100,000 each, led all other countries toward complete motorization. Numerically, they are followed by Australia, Germany, Canada, Argentine, Italy, Sweden and New Zealand. In fact, it might be said that almost every market of any consequence could be included in this group of forward marchers.

BODY PLANT EXPANDS

FOND DU LAC, WIS., Feb. 4—The Longdin-Brugger Co. of Fond du Lac, Wis., which now concentrates on the manufacture of the "Close-Tite" all-weather body for Fords, is erecting an addition to its plant to handle increasing business, which extends to foreign countries. A new department also is being established to fabricate all the glass used in curtains, and special machinery for grinding the material has been purchased.

Men of the Industry and What They Are Doing

Chandler to Lecture before S. A. E.

F. F. Chandler, chief engineer of the Ross Gear and Tool Co. of Lafayette, Ind., will lecture in Washington, D. C., on Feb. 13, before the Washington section of the Society of Automotive Engineers. Mr. Chandler will take for his subject "Steering Analysis and Shimmy."

Brennan Goes with Kelsey Wheel

The Kelsey Wheel Co., Inc., of Detroit, announces the affiliation of C. H. Brennan with its sales division. Mr. Brennan has been associated with the automotive industry for many years.

Dugan Succeeds Martin

T. L. Dugan has been appointed manager of the Wisconsin Flint Co., Milwaukee, State distribuor of the Flint Six. E. W. Martin, who established the Milwaukee concern as a branch of the Chicago Flint Co. several months ago, has returned to Chicago to resume charge of sales.

Bias Joins Steel Products Co.

Marion C. Bias of the old Mitchell Motors Co., Racine, Wis., has been appointed secretary and treasurer of the Steel Products Co. of Racine.

Colonel Peck Retires as Manager

Col. Eugene C. Peck has retired from actual management of the Cleveland Twist Drill Co., Cleveland, Ohio, after almost 25 years with the company. He will continue a stockholder in the concern and as a member of the board of directors.

Littleton Becomes a Nash Manager

C. M. Littleton has been appointed general manager of the Nash Sales Co. of Madison, Wis.

Chesnutt Goes with White

Ralph C. Chestnutt, formerly chief engineer for the Templar Motor Car Co., has been made truck designer of the White Motor Co., Cleveland.

Miller Succeeds Thornton

L. T. Miller has been appointed purchasing agent of the Detroit Steel Products Co., Detroit, to succeed T. F. Thornton, who resigned to become president of the Roehm Steel Rolling Mills of Detroit. Mr. Miller recently was with the Chevrolet Motor Car Co.

Westmoreland Organizes Company

H. E. Westmoreland, who served with the McQuay-Norris Manufacturing Co. for many years as a sales executive, has formed the Westmoreland Co. in Amarillo, Tex., and will enter the jobbing field. The company, of which he will act as president, will carry a complete line of replacement parts and will serve dealers in that section of Texas. While with McQuay-Norris, Mr. Westmoreland acted both as southwestern manager, with headquarters at Dallas, and as sales manager, with headquarters at St. Louis.

Stebbins Resigns as Vice-president

C. L. Stebbins has resigned as vice-president of the Auburn Rubber Co., Auburn, Ind., after a lengthy association with the organization.

Dunham Forms Company

George W. Dunham, well known in the automotive field, has formed the George W. Dunham Corp. for the manufacture of electric labor-saving appliances in Utica, N. Y. Mr. Dunham invented and developed the washing machine built by the Savage Arms Corp. and is putting on the market a new washer embodying the centrifugal drying principle.

Mr. Dunham is president of the new Dunham Corp., and has moved his home to Utica, where his plant is located.

Earle Made Sales Manager

H. B. Earle has been appointed sales manager of the Judd & Leland Mfg. Co., Clifton Springs, N. Y. Mr. Earle was formerly connected with the sales department of the AC Spark Plug Co., Flint, Mich.

Reynolds Made District Manager

W. M. Reynolds, formerly with Burgess-Norton, Geneva, Ill., has joined the Pedrick Heat Shaped Piston Ring organization as district manager in charge of New England and New York territories.

Rippingille Goes with Dayton

E. V. Rippingille, widely known in the industry as a sales executive, has been appointed general sales manager of the automotive division of Dayton Engineering Laboratories Co. For the past several years Mr. Rippingille has been acting as a manufacturers' representative in the Detroit district. Previously he was connected with the sales and service departments of Hudson Motor Car Co.

Vance Goes to Campbell-Ewald

R. K. Vance has resigned as assistant advertising manager of Paige Detroit Motor Car Co. to become a member of the Campbell-Ewald organization.

Williams Made Sales Manager

Frank J. Williams, who for the last five years was connected with the Oldsmobile-Pittsburgh Co. as sales manager, has been appointed general sales manager for the B. W. Lemmon Co., distributor of Rickenbacker motor cars.

Appel Joins G. M. Staff

W. D. Appel, formerly assistant chief engineer of Oakland Motor Car Co., is now a member of the technical staff of General Motors Export Co.

Loudon Made Assistant Engineer

W. P. Loudon, recently chief engineer of the automotive section, Westinghouse Electric, has been made assistant chief engineer of this company.

W. T. White Outlines Greater Bus Fields

President of White Co. Sees Many Developments in Motor Vehicle Business

CLEVELAND, Feb. 4—Pointing to numerous developments that he believes will be brought about in the automotive industry, Walter T. White, president of the White Motor Co., declares motor transportation is only in its primary stage.

Among the developments that Mr. White predicts are:

Expansion of the motor bus business into its own industry aided by wider adoption of legislation protecting bus operation and growing coordination of buses with electric railways.

Opening of wider fields for motor trucks for motor truck use through coordination with steam railroads. Expansion of the highway system and the increased buying power of the automobile.

Growing influence of motor truck transportation and its constructive effect on business that will reach the point of changing the architecture of buildings in crowded centers of population.

Evolution of the truck salesman into the broader field of transportation engineering, scientifically analyzing a prospective customer's hauling needs primarily from the standpoint of units and routes, rather than merely from the standpoint of the salesman's make of truck.

Better understanding among truck owners of the proper formula for operating trucks, with improved cost systems, better care of equipment; use of the right unit for the right job and a realization of the proper use of the road.

In dismissing the saturation point as "being out of date," Mr. White said:

Today there is a better understanding of the economic benefit to be gained by the community through motor transportation on the public highways. There is no limit to motor transportation.

Everything related to the automotive industry has a greater dollar purchasing power now than before the war. Statistics show that the value of the amount of goods obtained for $1 in 1923, on the basis of the dollar of 100 cents in 1913, was 111 cents so far as motor vehicles are concerned; with tires and gasoline also about the 100 mark.

The old idea was to let motor transportation take care of itself. It was not figured into the plans for the future.

Brewster Joins Schutte Body Co.

Henry Brewster has joined the Charles Schutte Body Co., Lancaster, Pa., as designer and engineer.

Woodruff Goes with Dunham

Charles A. Woodruff has joined the George W. Dunham Corp. of Utica, N. Y., as purchasing agent.

Jordan Brands 1925 Best Automotive Year

Predicts Production Will Reach 4,000,000 Cars—Refinancing Stage

CLEVELAND, Feb. 4—Edward S. Jordan, president of the Jordan Motor Car Co., says this will be the biggest year the automobile industry has ever seen. He says there will be a production of 4,000,000 cars, because the purchasing power of the country is increasing and old cars will be replaced by new ones, while hundreds of thousands of persons who have never owned automobiles before will buy Fords.

He made these predictions, because the purchasing power of the United States this year will be far beyond anything ever before seen. He emphasizes these conclusions:

Reasons for Conclusions

Wheat is bringing a real price and is going higher.

Iowa, Minnesota, Nebraska and the Dakotas are full of happy farmers out of debt.

Texas and Arizona cotton is selling high. California is growing fast and has settled down to steady, satisfactory business without a boom.

Money is waiting in the banks for borrowers.

Stocks of automobiles are fairly low.

Coolidge is cutting expenses in Washington.

There is a tremendous development of good roads all over the country.

The stock market, which generally is a good barometer, is booming, with December, 1924, breaking all records.

People everywhere are conservatively spending money that they have saved.

The next most important stage in the automobile industry was pronounced by Mr. Jordan to be the financing stage and the settling down of the industry to a normal business basis, which may best be characterized by comparison with the farm implement business. He says the industry will ultimately be concentrated in the hands of a few companies, but that one corporation will not dominate the industry.

Those who will survive in the industry will be those who will build a good product, standardized from the standpoint of production; who first eliminate all unnecessary overhead; concentrate on a single model and place themselves in a position to finance the business from purchase of raw materials to the last payment made by a customer.

Aluminum Alloy Cited

The greatest development of the future in the automobile industry will be the production of an aluminum alloy, which would sell at the price of steel—something which Henry Ford might have had in mind when he was talking about Muscle Shoals. This idea would revolutionize the whole business of transportation.

With aluminum at 28 cents a pound and the price of steel at .035, imagine the saving that could be made in weight and economies of automobiles if a new and better metal could be produced, to sell at near the price of steel, he stated.

Cars of the future will be built with a shorter wheel base, lighter high-speed motors with greater economy of gas, tires and upkeep.

White Motors Co. Places 1924 Net at $4,100,000

CLEVELAND, Feb. 4—In its preliminary statement for the year 1924 White Motor Co. figures indicate net gross sales of over $45,500,000. Net earnings after all charges except dividends approximate $4,100,000. The company's dividends, uninterrupted since it organization, were continued on the basis of 8 per cent annually.

The company's statement says the preliminary figures indicate that the final balance sheet as of Dec. 31, 1924 will show current assets of $28,523,000 current liabilities of $625,000; capital stock of 500,000 shares of $50 par value; total assets and liabilities of $11,534,000 and a profit and loss surplus of $11,534,000. Good will was listed at $5,388,000.

Over $1,000,000 for Expansions

The company is completing expansions totaling more than $1,000,000 to take care of its rapidly growing business. It has moved into a new engineering building costing, with equipment, $275,000. The building houses the experimental machine shop, design department, engineering and metallurgical laboratories.

A new receiving building has been completed at a cost of $200,000. It helps the handling of freight and provides a testing laboratory for incoming material. The plants that were purchased from the White Sewing Machine Co., will bring the total of expansions well above the million dollar mark.

Motor Wheel 1924 Sales Reach $21,000,000

LANSING, MICH., Feb. 3.—Sales by Motor Wheel Corp. in the year just closed approximated $21,000,000 and show a healthy increase over 1923, according to a statement by C. C. Carlton, secretary. This is the largest business in a single year the company has ever enjoyed, Mr. Carlton said, representing an output of over 1,000,000 complete sets, or approximately 4,500,000 wheels.

MOTOR WHEEL STOCK SOLD

NEW YORK, Feb. 3—Motor Wheel Corp. common stock to the amount of 50,000 shares was offered and sold here at $15.50 a share by Charles D. Barney & Co. and Otis & Co. According to the bankers, the average sales in 1923 and 1924 were $20,000,000. For 1924 the net income totaled approximately $1,600,000, equivalent to $3.26 on the 490,891 shares. The bankers stated that the management intends to fix the next quarterly dividend, payable March 20, at 30 cents a share, thus placing the stock on a $1.20 annual basis.

FINANCIAL NOTES

E. I. du Pont de Nemours & Co. in its report for 1924 shows consolidated net earnings, after all charges, of $15,947,423, equal, after preferred dividends, to 12.46 per cent on the common stock, against 13.9 per cent in 1923. Net sales for the year were $90,861,633, as against $94,069,319 for 1923, a decrease of 3½ per cent. Of the total sales 14 per cent was attributed to the automotive industry. Preliminary estimate of the General Motors Corp. indicates that the earnings on its common stock, plus its accrued earnings in the Fisher Body Corp., will be about $8 per share for 1924, so that there has accrued to the benefit of the du Pont company on its holdings, in addition to the dividends received by it, approximately $4,108,400, making total earnings received on the company's holdings of General Motors Corp. common stock $10,532,000.

Pratt & Lambert, Inc., no par value capital stock to the extent of 50,000 has been offered through Dominick & Dominick and Edward B. Smith & Co., New York, at $37,50 a share. The company has outstanding $836,000 par value of preferred stock, which, it is stated, is to be called. It is proposed that the common stock now outstanding shall be exchanged for 202,500 shares of no par value stock. Application will be made to list the stock on the New York Curb Exchange. The company produces varnishes, enamels, lacquers and dryers.

Paige Detroit Motor Car Co. has notified stockholders that among the important matters to be brought before the annual meeting Feb. 9 will be resolutions amending the articles of association so as to authorize 1,000,000 shares of no par common in place of the present authorized 600,000 shares of common of $10 par value and the issuance and exchange of one share of the new stock for each share of the present stock outstanding.

Briggs Manufacturing Co. balance sheet as of Sept. 30, 1924, shows cash of $8,054,425, accounts receivable of $5,258,112, accounts payable of $2,858,909, capital stock of $23,143,902 and total assets and liabilities of $29.957,222. Its statement for the year ended Sept. 30, 1924 shows net profit of $11,225,132. after depreciation, federal taxes, etc., against $5,042,321 in the same period a year ago.

Glidden Co. plan to refund the first 8 per cent bonds, of which $2,867,000 was outstanding Oct. 31, 1924, with an issue of 6 per cent bonds, has been approved by the holders of prior preference stock. The annual sinking fund on the prior preference, which could not be paid until the 8 per cent bonds had been retired, now becomes effective.

B. F. Goodrich Co. reports for 1924 net profits, after charges, of $8,800,000, equal, after preferred dividend requirements, but before federal taxes, to $10.57 a share on the common, as compared with $3,025,383, or 80 cents a share, on the common in 1923. Net sales of more than $109,000 last year compared with $107,092,730 in 1923.

Miller Rubber Co. directors have declared an extra dividend of $2 a shart on the 8 per cent preferred stock, in addition to the regular quarterly dividend of 2 per cent, both payable March 1 to holders of record Feb. 10. The extra clears up all back dividends due on this issue.

Briggs Manufacturing Co. temporary interchangeable certificates for 1,999,688 shares of no par, has been authorized to be listed by the New York Exchange, making the total amount authorized to be listed 2,025,000.

Hayes Wheel Co. has declared the regular quarterly dividend of 75 cents on its common, also 1⅞ per cent on its preferred, both payable March 16 to stock of record Feb. 28.

B. F. Goodrich Co. has declared two regular quarterly dividends of $1.75 on the preferred, payable April and July 1 to stock of record March 16 and June 16, respectively.

Packard Motor Car Co. directors have declared the regular quarterly dividend of 1¾ per cent on the preferred, payable March 14 to stock of record Feb. 28.

Martin-Parry Corp. stockholders at a meeting approved the management's plan to increase the capital stock from 100,000 to 200,000 shares.

Tucker Rubber Co. has increased its preferred "A" stock from 5,000 to 10,000 shares, par $100, and its no par common from 50,000 to 75,000 shares.

Automotive Sheet Demand Picks Up

American Sheet and Tin Plate Co. Meets Advance by Independents

PITTSBURGH, Feb. 3—In opening its books for the second quarter on sheets the American Sheet and Tin Plate Co. met the $2 advance on the common grades as established by the leading independents, but nothing was stated in regard to the automobile grade beyond the fact that the price was not changed.

It was learned, however, that this is not an indication that the price will remain unchanged for the second quarter. It is predicted that an advance will be made in the near future above the present 4.75c. rate.

The market in automobile sheets dragged all through the month of January and this probably induced the independents not to advance their prices when they announced they had opened their books for the second quarter.

During the last week there was a considerable picking up of specifications on automobile sheets, due to increasing operations among the parts makers and automobile producers. One large producer of cars who was apathetic just two weeks ago on his buying is now urging deliveries.

A firmer demand which mills believe is now materializing will result quickly in a price advance. The American Rolling Mill Co. was the last of the large independents to announce its prices the latter part of last week and it also took no action on automobile sheets.

St. Louis Automotive Trade Totals $88,000,000 in 1924

ST. LOUIS, Feb. 4—Figures on the total business, wholesale and manufacturing, done by the industries in St. Louis during 1924 and compiled by the St. Louis Chamber of Commerce show that the automobile industry was one of the leading branches with a total volume, wholesale and retail, of $68,000,000 with a $20,000,000 accessory business in addition.

An interesting feature of the report was the complaint by the street car manufacturing companies that the competition of buses and jitneys had caused their business to fall off to the extent of $5,000,000 from 1923.

The conclusions drawn from the report are that the year of 1924 was not a sensational year, but it was a fairly good one and the finish it made leads the prophets to predict a booming year in 1925.

TO SELL NICKEL HOLDINGS

NEW YORK, Feb. 3—An officer of the National Trust Co., in denying a report that interests associated with Henry Ford, had made an offer for the British-American Nickel Corp. holdings, said, as trustee for bondholders of the company, that the court has ordered this property sold by public auction not later than March 15, and that he hoped the date would be before April 1. Even if anyone wanted to make an offer, it is obvious he could not do so, he added.

INDUSTRIAL NOTES

Shailor-Wheeler Engineering Co. of West Haven, Conn., has been organized to manufacture automotive equipment for the car manufacturers. The company has a new line of body hardware, headlights and instruments. G. E. Wheeler of New Haven is president and F. E. Shailor of Detroit is secretary.

Northern Rubber Co. of Akron is selling an issue of stock to finance a program of expansion. The company produces "Biltwell" and "Northern" automobile tires. An addition to the factory is planned.

Interborough Rapid Transit Co., New York City, has notified members of the New York legislature that it is willing to operate 3-cent feeder buses, in conjunction with its present system, and also to provide 8-cent buses as a rush hour expedient on streets occupied by the rapid transit lines. President Hedley said the Interborough was prepared to examine the matter of free transfers from buses to elevated and subway lines.

Morris Motors Output Makes New Record

LONDON, Jan. 29 (*By Mail*)—At the annual staff dinner of Morris Motors, Ltd., Mr. Morris stated that during the week ending Jan. 10 output broke all previous records, 1038 cars having been delivered from the Cowley plant. An output of 1000 per week has been exceeded only on one previous occasion, which was just before the announcement last year of the pending removal of the import duty on cars.

Mr. Morris went on to say that if the import duty had not been removed he would now have been producing 75,000 cars per annum; as it is, the production is at the rate of 40,000 a year, "which means," he said, "that 35,000 cars that will be sold in England in 1925 are being made by foreign labor, and to think that there are British workers now unemployed makes me doubt the sanity of the government that took off the protective duties."

The company announces that it is now prepared to supply buyers of new Morris cars with a garage at a price much lower than one can be secured through the usual channels, viz.: £15 15s. for the Cowley model and £17 for the Oxford model. The building is built in sections and can be erected on a given site in three hours by two men.

OPENS EXPORT DEPARTMENT

MILWAUKEE, Feb. 3—The American Grinder Manufacturing Co. of this city, maker of Blackhawk wrenches, announces the opening of its export department at 130 West Forty-second Street, under the management of H. L. Kraus, who is acting in the same capacity for the Biflex Corp., the Apco Manufacturing Co. and the Simmons Manufacturing Co.

METAL MARKETS

The steel market's barometer points to cloudy. Developments in the last few days have been chiefly of the negative sort. The $2 per ton advance in ordinary sheets has resulted in a more spotty sheet market condition than has prevailed in some time.

Buyers say they are offered black sheets at prices $2 to $15 a ton below the 3.70c. quotation announced last week. Sheet bars, quoted a fortnight ago at $40, are freely offered at $39, and some buyers say they could shade that level.

New business is coming in slowly. Automotive demand and inquiries, however, are gaining in importance as other steel consuming industries turn their backs upon the market. Full-finished automobile sheets continue to be quoted at 4.75c., 22-gage base.

Some buyers say they have found this price level firmly adhered to, while others intimate that it might be slightly shaded. On the whole, however, and certainly in comparison with ordinary black and blue annealed sheets, the market for full-finished shows impressive steadiness.

Strip steel, both cold and hot-rolled, is in good demand from automotive consumers, and specifications against existing contracts are liberal.

Sales managers are agreed that the volume of January business was a keen disappointment, and most men believe that the lull is not likely to give way to worth while renewal of the demand before the closing days of March or the first weeks in April. This, of course, pertains to the steel market as a whole.

Automotive purchases seem to be making a better showing from day to day. There is no spectacular demand and parts makers are not disposed to commit themselves heavily for raw material as long as their customers continue a strict hand-to-mouth buying policy, based on the number of finished units sold by dealers.

There is, however, a steady increase in the number of orders placed. Merchant bars are now more uniformly quoted at 2.20c., Pittsburgh and Youngstown having generally followed the lead of Chicago.

Greater activity is noted among New York steel importers. While this is perhaps only of academic interest to automotive steel consumers, it is one of the important checks on prices, although at present merely potential.

Pig Iron—The market has turned very easy, if not weak, and $22 offers are more numerous. Automotive foundries are buying single car lots or specifying against old contracts. Second quarter inquiries are slow in developing.

Aluminum—The market is steady with fresh developments lacking. Secondary metal interests report a good demand at full prices.

Copper—The red metal is holding its own, and the market is in a very healthy condition. Speculative holdings have been largely liquidated, the statistical position of the metal is sound, and domestic consumption fairly good. Prices for rolled copper and brass products hold steady, and demand from automotive consumers is quite encouraging.

Century Company Gets More Defiance Property

DEFIANCE, OHIO, Feb. 3—All property of the Defiance Motor Truck Co., this city, has been sold to the First National Bank of Toledo for $51,200. This bank, which was the only bidder, held bonds issued by the company some years ago.

Sale of property is another legal step to place the old Defiance Motor Truck property with the new Century Motor Truck Co., which is operating in a portion of the factory.

It is understood that, following the purchase of the entire property from the Toledo bank, the Century company will sell or lease a portion to the General Body Co., which is now manufacturing bus bodies in the west half.

Calendar

SHOWS

Feb. 7-14—Kansas City, Mo., Annual Automobile Show.

Feb. 9-14—New York, Eleventh National Motorcycle, Bicycle and Accessory Show, Seventy - first Regiment Armory, under the auspices of the Motorcycle and Allied Trades Association.

Feb. 21-28—San Francisco, Pacific Annual Automobile Show.

March 7-14—Boston, Twenty-third Annual Automobile Show.

March 8-14 — Vienna, Spring Fair.

March 20-29—Geneva, Switzerland, Second Swiss International Motor Exhibition.

April 1-17—Sydney, Australia, Royal Agricultural Show. Embraces automobile exhibits.

April 8-14—Bandoeng, Batavia, automobile show under auspices of Netherlands Indies Jaebeurs Fair Association.

April 22-May 7 — Melbourne, Australia, International Automobile Show, under the auspices of the Chamber of Automotive Industries, in conjunction with the Royal Automobile Club of Victoria.

June—Rio de Janeiro, Brazil, Rio Automobile Show, originally scheduled for October, 1924, but postponed for more extensive arrangements.

Oct. 8-17 — London, Olympia passenger car show.

Oct. 29-Nov. 7—London, annual truck show.

RACES

July 26—Paris, Montlhery Track, French Grand Prix.

CONVENTIONS

June 22-27—Summer convention of the Automotive Equipment Association at the Broadmoor Hotel, Colorado Springs, Colo.

S. A. E. MEETINGS

Feb.—Indiana Section, Automobile Finishes.

Feb. 16—Cleveland Section, Electrical Instruments and Measuring of Chassis Tests by Means of Them, J. H. Hunt, General Motors Research Corp., Old Colony Club, Cleveland.

March—Indiana Section Developments in Transmission.

March 16 — Cleveland Section, Road and Riding Ability, Harry Horning, Waukesha Motor Co., Old Colony Club, Hotel Cleveland.

April 9—Indiana Section, Talk by J. H. Hunt, head of electrical division, General Motors Research Corp.

Optimism is Spread at Chicago Feasts

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he said, favors the flat rate system of charges and dealers were urged to adopt that method.

A. F. McCrea, advertising manager, spoke of efforts which the company has and is making in the matter of sales promotion and said that only such plans as had been found from experience to work successfully were being submitted to Velie dealers.

Ackerman Addresses Franklin Men

Speaking before a gathering of dealers at a luncheon at the Congress Hotel S. E. Ackerman, general sales manager of the Franklin Automobile Co., declared that Franklin's production policy this year will be to manufacture vehicles only in sufficient quantities to meet the requirements of orders from dealers. More than 250 representatives of the Franklin company's dealer organization were present.

It is Mr. Ackerman's prediction that more automobiles are going to be sold than ever before, but he declared the future market will have no place for mere order takers.

Over 500 at Studebaker Banquet

The annual Studebaker dealers' banquet at the Blackstone Hotel drew an attendance of more than 500 and revealed a degree of optimism and enthusiasm seldom surpassed. There were dealers present from every Western and mid-Western state.

D. A. Lippencott, director of industrial relations at the factory, was toastmaster. The principal address of the evening was delivered by Harold S. Vance, sales manager. Mr. Vance stressed the importance of aggressive salesmanship, pointing out that while general business conditions are bright, competition is keen.

Chicago Trade Men Feast

Chicago automobile salesmen turned out en masse for the annual pre-show sales banquet of the Chicago Automobile Trade Association. Walter Lichtenstein, executive secretary of the First National Bank, of Chicago, gave the salesman an able analysis of conditions both in America and abroad in an effort to show that business prospects for the automobile trade in 1925 are promising.

James Samuel Knox spoke on the subject: "Doubling the Value of Your Selling Methods."

The meeting was presided over by Henry Paulman, president of the Chicago Automobile Trade Association.

Hardy Tells of Olds Policy

A. B. C. Hardy, president Olds Motor Works, told several hundred Oldsmobile dealers at the annual dinner of the company's western dealers at the Hotel La Salle that 60 per cent of Olds production of model 30 would be coaches, 25 per cent open cars and 15 per cent sedans. President Hardy is one company executive who believes that the touring car is not going to pass out of the picture.

However, he cautioned his dealers regarding open cars taken in trades on new cars, urging them not to overbuy. Mr. Hardy favors a gradual narrowing down of body lines and hopes that these may soon be reduced to five, namely: touring car, sport touring, coach, sedan and de Luxe Sedan.

O. H. Peasley acted as toastmaster. E. St. Elmo Lewis of Campbell-Ewald Co. explained the Olds advertising program. Geo. T. Carroll of the General Motors Accounting Corp., spoke on the work that corporation is doing in financing factory purchases.

Jewett Tells of Ideals to Paige Men

Development of a satisfied patronage which will feel that it has been given its money's worth and treated honestly and fairly is one of the first ideals for which the automobile dealer should strive. H. M. Jewett, president of the Paige-Detroit Motor Car Co., told nearly 500 dealers, distributors and salesmen at the annual banquet of the Paige organization for its field forces at the Blackstone Hotel.

Henry Krohn, vice-president in charge of the passenger car department, served as master of ceremonies. Mr. Jewett was the only speaker.

Moves to Eliminate Port Preferentials

WASHINGTON, Feb. 4—All preferential railroad rates benefiting any particular American port would be eliminated under the terms of a bill introduced in the Senate by Senator William M. Butler of Massachusetts.

Just what effect, if any, the bill would have on certain industries, such as the automotive and other large exporting trades, is not fully determined. The measure, however, would wipe out the "port differentials" now given Philadelphia, Baltimore and Norfolk by various railroads and also the ocean differentials by which North Atlantic ports receive lower rates than South Atlantic ports.

By the elimination of the ocean differential rate, the advantages of which accrue to a large extent to such exporters as the automobile industry, passage of the bill would affect materially the rate now obtained through these "preferred ports" by export automobile shippers.

Specific ports are not designated in the measure and because of its generalities it is not believed the particular measure can be enacted into legislation. Senator Butler declares that port differentials in railroad rates are unknown on any seaboard except the North Atlantic, and his bill would equalize all ports of commercial egress.

Too Many Favored Ports

"From the expressed view of shippers in the West and Middle West, it is highly important that as many routes as practicable be kept open for the movement of the nation's export and import commerce," Senator Butler declares.

"One of the unfortunate effects of the port differentials is to compel shippers to route their traffic through certain favored ports. This is injuring the New England ports, the South Atlantic ports and the gulf ports but it is also injuring western shippers," he states.

While it would mean increased rates in some instances, Senator Butler also points out that it will mean that shippers can use any port in the future on an equalized rate.